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Original Articles.

THE SANATORIUM TREATMENT
OF TUBERCULOSIS *

BY T H DELANY, M D, B Ch, F R C S I,

CAPTAIN, I M S

THE following is a brief description of the methods adopted and routine followed at Nordrach-Colonie in the Black Forest, Germany, under the direction of Dr Otto Walther, the pioneer in the sanatorium treatment of tuberculosis

I regret to have to announce that this excellent sanatorium is no longer available for the general public, as it has been bought up by the German Government as a home for invalid workmen under the state insurance scheme

At the outset I desire to point out that the term "open air treatment" does not cover more than a small part of the course of treatment. In Nordrach this is varied according to the special features of each case, though certain cardinal principles were adhered to for all cases. The fundamental factors in the sanatorium treatment that contributed to the favourable results in Nordrach may be summed up as follows —

- 1 Accurate observation of the rectal temperature at least four times a day
- 2 Rest alternating with
- 3 Exercise, carefully graduated
- 4 Generous feeding
- 5 Fresh air always
- 6 Local conditions, climatic and otherwise
- 7 The personality of the director

1 As to the rectal temperature, there is a good deal of misunderstanding amongst physicians and surgeons who do not habitually employ this method of ascertaining the temperature

If the temperature of a perfectly healthy person is taken four times daily (as at Nordrach), the chart curve will vary with the person at absolute rest in bed (mental as well as physical rest) and with his taking exercise

(a) The normal temperatures at rest are usually —

On awaking at 6-30 A M 36.6°C ($=97.5^{\circ}\text{F}$) or lower

At 11 A M 37°C ($=98.5^{\circ}\text{F}$) to 37.2°C (98.8°F)

At 5 P M do do

At 10 P M (or bed-time) $=36.6^{\circ}\text{C}$ or lower

(b) The normal rectal temperatures of a healthy person taking moderate exercise are —

On awaking at 6-30 A M $=36.6^{\circ}\text{C}$. ($=97.5^{\circ}\text{F}$) or lower

At 11 A M (after exercise) $=37.8^{\circ}\text{C}$ to 38°C ($=100.2^{\circ}\text{F}$)

At 5 P M (after exercise) $=37.8^{\circ}\text{C}$ to 38°C . ($=100.2^{\circ}\text{F}$)

At 10 P M (or bed-time) $=36.6^{\circ}\text{C}$ or lower

A quite healthy person may however have a rectal temperature of 38.4°C ($=101^{\circ}\text{F}$) after fatiguing exercise, and temperatures as high as 39°C ($=102^{\circ}\text{F}$) have been observed in a small percentage of troops in the German army after forced marches in perfectly healthy soldiers

With regard to the normal rectal temperature, it has been observed that no two persons at the same time under the same conditions as regards rest and exercise, have precisely the same temperature, there being at times 6°C (or over 1°F) difference

The rectal temperature of a tuberculous patient on the other hand tends to be at all times elevated, and it is particularly elevated after exercise. If, however, he is kept completely at rest, his rectal temperature can be kept down remarkably

Each patient on arrival in Nordrach was kept in bed for about ten days, but his temperature never so low, and he was ever so slightly affected. If his temperature while in bed remained within the normal (resting) limits, he was allowed to get up, and was given slight walking exercise on the level, the effect on the rectal temperature being watched. If all went well his allotted exercise was gradually increased, but if the temperature showed an upward tendency he was put back to bed again. The morning temperature was watched with particular care as it gives the best indications of an upward tendency. Should exercise not cause an undue elevation of temperature, the walks were still further increased, and were no longer on the level but on gradually sloped paths amongst the hills, and with this a marked improvement in the symptoms and physical signs became noticeable

A patient with a high morning temperature was kept in bed sometimes for weeks or months, during which period absolute rest was enjoined. Visitors were strictly forbidden. Talking was not allowed and the reading of any but the mildest literature was prohibited. The temperature usually came down slowly in such cases, and on its coming within the normal (resting) limits above mentioned, the patient was gradually given exercise

Thus the amount of rest and exercise were altogether regulated by the rectal temperature

The rationale of this was based on the same idea as the bacterial vaccine treatment, the patient's lesion supplying the toxin. Thus the effect of exercise on the rectal temperature is said to be due to raising the blood pressure, flooding the tubercular foci with blood, and temporarily stimulating them into activity with the result that toxin is given off in small doses. Too much exercise would have the evil effect

* A paper read at Asiatic Society of Bengal, March 1909.

of causing the foci to give off too much toxin with a resultant rise of temperature, which further reacting on the foci would stimulate them still further. Therefore too much exercise acts like an overdose of vaccine with the reaction rise of temperature. On the other hand suitable exercise causes the slight giving off of toxin which stimulates the formation of anti-bodies whether opsonins or antitoxins, which in turn are further increased by the good feeding and excellent hygienic conditions, the leucocytes of the blood being augmented in number and activities for the same reason. Thus a condition of active immunity is the result.

Dr Otto Walther found by experiment that the ordinary thermometers were liable to give inaccurate readings the longer they were in use, owing to distortion in the glass due to expansion and contraction, the most common inaccuracy being too high readings. To obviate this he had a special thermometer made at the famous glass works at Jena, the glass in this thermometer being of such a composition that no permanent inaccuracies owing to distortion were likely to occur. The scale and the mercury column (except of course the bulb) were contained in an external glass envelope.

Rectal temperatures alone were taken at Nordrach because of the extreme accuracy of these compared with mouth or axillary temperatures. The elevation of the rectal temperature precedes sometimes by hours, the rise of temperature in the mouth or axilla.

After some months of treatment a good patient's temperatures show extreme regularity varying from 36.2°C in the morning before dressing to 37.8°C after the morning walk, about the same after the afternoon walk, and then at night after 15 minutes in bed showing 36.8°C .

2 *Rest*—Every patient who took exercise had to rest on a long chair for a full hour before meals, even talking being prohibited during that hour. All patients retired to bed at 9 P.M., though not to sleep until 10 P.M., and rose in the morning at 7 A.M. Patients with unsatisfactory temperatures remained in bed, the worst cases not being allowed even to talk or read. A case on slight exercise would rest on an easy chair in the open air or in a shelter when not exercising.

3 *Exercise*—Only one form of exercise was permitted, *viz.*, walking, and violent exercise was prohibited even in after-life. Almost all paths were made with an easy gradient, and some with steep gradients were only used by patients who were quite cured.

The walking pace was exceedingly slow for those beginning exercise, perhaps no more than half a mile an hour. Frequent rests were taken on conveniently placed seats. As the patient improved the walks were extended, and a recovered case might walk as much as 12 to 15 miles from 7-30 A.M. to 12 noon amongst the

hills. Each day the walk was varied, and directions were given to patients before breakfast as to the length of the walks they might undertake. This was regulated by the patient's rectal temperature in the previous 24 hours.

Exercise was taken immediately after meals. In fact the patients got up from the table and started for their walks as soon as they had finished eating, no resting after meals being permitted. The forenoon walk was the longest one, the evening walk being not more than half or one-third the length of that taken in the morning.

4 *Generous Feeding*—Practically no kind of food was excluded from the table, except that green vegetables were given sparingly. There were three meals a day—breakfast at 8 A.M., dinner at 1 P.M., supper at 7 P.M.

The quantity of food one was encouraged to eat was great especially at dinner, and it was rather rich as a rule with good cream and butter sauces. Veal and pork appeared almost every day.

Smoked uncooked ham and minced raw beef were partaken of twice or three times a week. All patients drank a little of milk with each meal, unless especially exempted. One found it difficult at first to rise from the dinner table after a heavy meal and straight away do an uphill walk.

Patients with small appetites were encouraged, in fact forced almost, to eat the big meals, and it was wonderful to see how such people could gradually acquire a good appetite. Those who suffered from vomiting were likewise stuffed with food, and the result was invariably to stop the vomiting. It was a practical demonstration of the proverb "*L'appetite vient en mangeant*." Light wines and excellent beer were allowed to those who cared for them.

Every week weighments were made, and it was interesting to observe the rivalry that existed between patients with reference to gaining weight. Gains of weight of 3 and 4 pounds in a week were not uncommon, especially in the earlier stages of the treatment. After three months the weight frequently remained practically stationary. Medicines and artificial foods were conspicuous by their absence. Small menthol and liquorice pastilles to alleviate throat irritation and a tendency to cough were used by those who cared for them, but beyond that there was no treatment by drugs.

5 *Fresh air*—There is no greater fallacy than to suppose that the sanatorium treatment consists mainly in living in the open air. No doubt the inhalation of pure air was one of the factors in the treatment, but that alone without the regulation of rest and exercise according to the rectal temperature, is demonstrably inadequate as a means of curing tuberculosis.

In Nordrach-Colonie windows were kept open all day and night, in all weathers. A severe

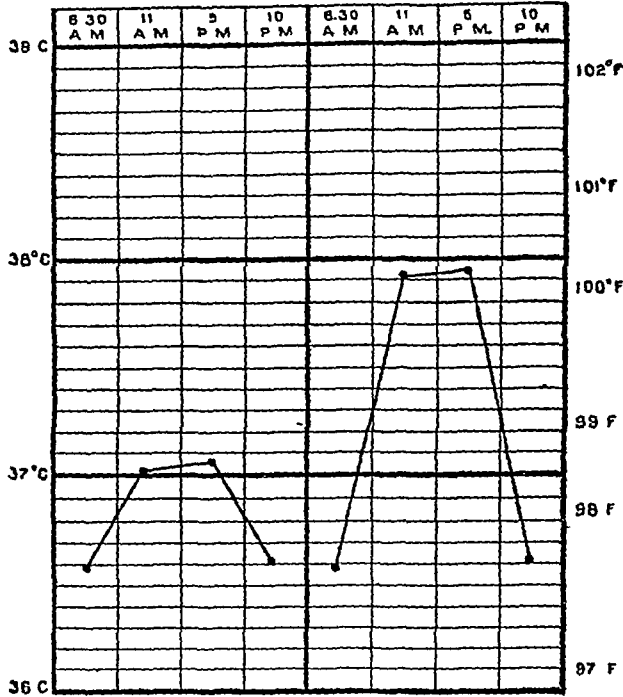
THE SANATORIUM TREATMENT OF TUBERCULOSIS

BY CAPTAIN T H DELANY, M D, BCh, FRCSI, IMS

I

NORMAL RECTAL TEMPERATURES

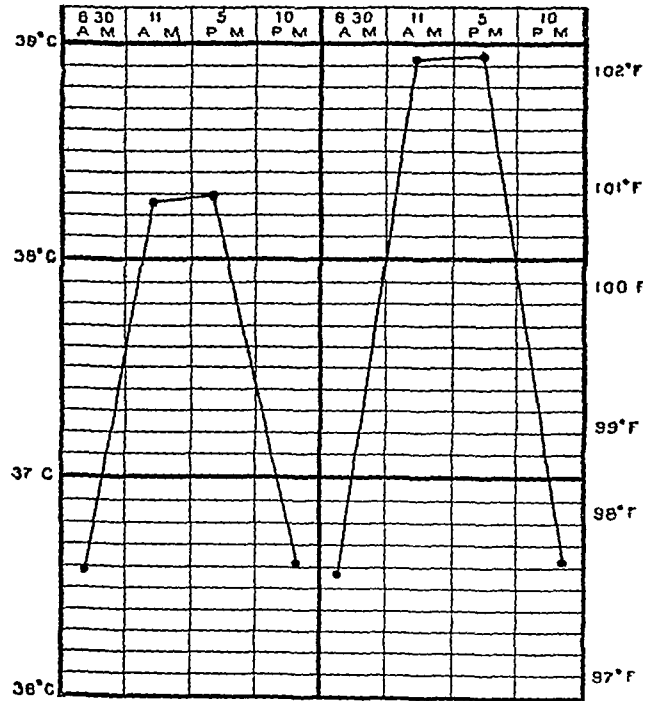
(a) At rest (b) Taking moderate exercise



II

RECTAL TEMPERATURES OCCASIONALLY SEEN IN QUITE HEALTHY PERSONS

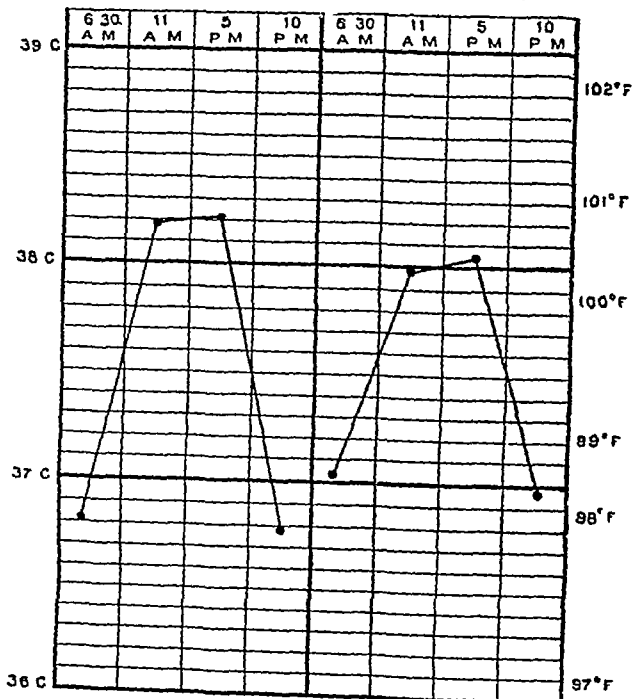
(a) Taking fatiguing exercise (b) Taking very fatiguing exercise



III

THE MINIMUM RECTAL TEMPERATURES ON MODERATE EXERCISE REQUIRING REST IN BED IN TUBERCULOSIS

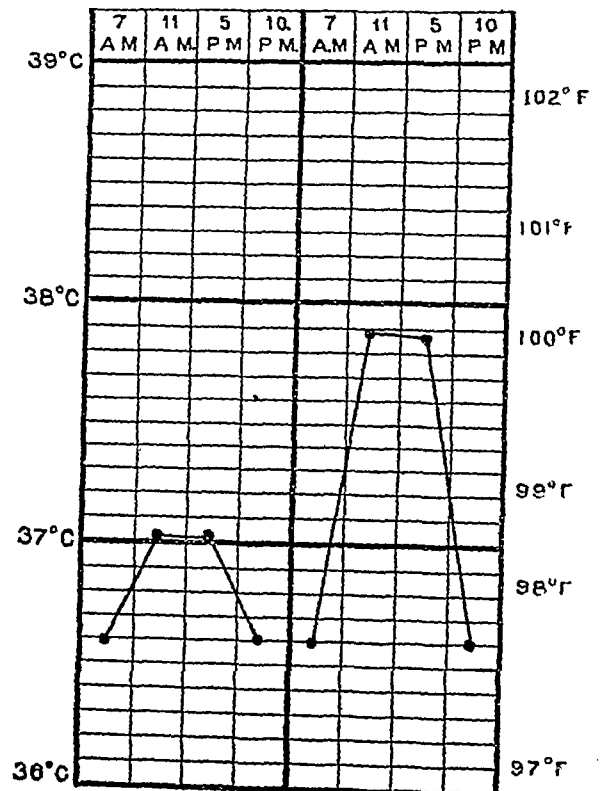
(a) Unsatisfactory temps after exercise (b) Unsatisfactory temps night and morning



IV

NORMAL RECTAL TEMPERATURES

(a) At rest (b) Exercising



draught was not desired, so that doors were rarely kept open, and it was interesting to see patients resting on easy chairs in the open with a foot or so of snow on the ground.

As a result of constantly living in a pure atmosphere one soon acquired a real intolerance for a closed room, and it was positive torture to travel in closed railway carriages such as one meets with on the continent, after living in a sanatorium.

Hats and overcoats were rarely worn and colds and catarrhs were absolutely unknown. Of course with open windows one had to keep oneself well clothed. In Nördach the patients slept in cotton wool (Lohmann's) bed clothes, using no sheets of ordinary linen or cotton. Every room was provided with a shower-bath (with hot and cold water laid on) and with steam or electric heating as well. The Colonie had its own electric plant.

6 *Local conditions, climatic and otherwise*—The sanatorium at Nördach-Colonie is situated in the Black Forest in a picturesque pine-clad valley running East and West. It is about 1,500 feet above sea-level. There are no villages or houses about, the nearest village being 5 miles away and the nearest railway station 13 miles away. Thus the Colonie is practically isolated, a condition which appears essential to a sanatorium, for many reasons.

It was very cold in the winter. Snow rested on the ground for three or four months, but luckily high winds are rare there. It was rather warm, uncomfortably so sometimes, in the summer. The graduated walks amongst the pine-clad hills were numerous and varied. One felt that the air was invigorating, especially in the winter.

Each patient, of course, had a separate sleeping room. There was a large dining hall to accommodate nearly 80 patients situated at some little distance from the sleeping villas, of which there were five in all. The weekly inclusive terms were £3 10 to £4 10 according to the size and situation of the room. The treatment was identical for all whatever the amount paid.

7 *The personality of the director*—The success of any large institution must depend to a large extent on the character and personality of the manager thereof. But I feel I am correct in stating that nowhere is a man of strong character and personality so essential as in a sanatorium. Dr. Otto Walther was to my mind an ideal director, and the renown of his methods and success of his sanatorium were largely due to his force of character.

It was wonderful to see him induce the patients with bad appetites to eat large meals. He never hesitated to send away an unruly patient, and this had a good effect on the discipline of the sanatorium. Every patient was

visited three times a day by Dr. Walther himself or by one of his assistants. He usually had two assistants (ex-patients) of late, but formerly he worked single-handed, until the numbers of his patients increased greatly.

From the foregoing brief description it must be apparent that there is no reason why the sanatorium treatment could not be carried out in India.

From a personal knowledge of Darjeeling, Kurseong, and Kasauli, I believe that the necessary local conditions can be found in India. Indeed Kasauli might almost be a portion of the Black Forest, the places are so similar. The climatic conditions of these hill stations should be quite suitable for the sanatorium treatment. A high rainfall is not an objection when the drainage is good.

There can be no doubt now as to the success of the sanatorium treatment of tuberculosis especially of the lungs, and it makes one wonder when the Government of India will build such an institution. Every civilized country in the world is now provided with them. An Indian sanatorium would be of immense advantage for the treatment of early tuberculosis amongst British soldiers, and Civil and Military officers, and the treatment would be of immense benefit to Europeans broken down in health by long residence in the plains of India, even when they are not tuberculous.

The trying voyage to Europe is in my opinion very injurious to patients in the early stages of pulmonary tuberculosis, chiefly owing to the patient's ignorance of sanatorium methods, which in fact are not easily carried out on board ship amongst healthy passengers. And there are hundreds, nay thousands of sufferers to whom a voyage to Europe and a stay in a sanatorium there are absolutely impracticable.

There may be disused barracks or other large buildings belonging to Government somewhere in or near the best hill stations which, if converted into sanatoria and properly managed, would repay Government for any initial expenditure. Such an institution could be made self-supporting (as are the sanatoria in Europe) by patients' fees, and it would be in no sense a cause of danger to other visitors to these hill stations.

Finally, I would like to repeat that the term "open air treatment" covers but a small part of sanatorium treatment, and that the most important portion of the treatment is the regulation of exercise and rest by the condition of the rectal temperature, coupled with generous feeding.

It is now recognised that it is impossible to carry out the Nördach treatment anywhere but in a sanatorium, where numbers of other patients are following the same daily routine, and any attempt to treat a case on these principles in a patient's home is doomed to failure.

TUBERCLE OF THE LUNGS IN BENGAL JAILS *

By JOHN MULVANY,

MAJOR, I M S

In studying a disease like Phthisis the vital statistics of jails are of limited value. In India where, for the most part, the village *Chaukidar* is the registrar of deaths the records of jails present, perhaps, the only source available from which we can obtain quite reliable information of the ravages of a disease amongst large numbers of people spread over wide areas. Even of the prison population, these statistics must, however, be accepted with some reserve.

Criminals are drawn for the most part from, what are often mis called, the criminal classes, that is, from the poor and needy, the maimed and the diseased—the half-starved submerged tenth—whose main inducement to crime is that they have been less fortunate than their fellows in the division of this world's goods. The majority are, on conviction, in decidedly indifferent health, and it is extremely probable that for this reason they are more liable to phthisis than the larger non criminal population. Indeed it is my experience that many men suffering from disease commit crime in order to obtain admittance to the jail hospital where they know they will be cared for during the term of their imprisonment.

The proportion of females to males in prison is very low, much lower than among the general population. The two extremes of life are conspicuous by their absence. All these are points of great importance, which must be allowed for in an investigation such as we are undertaking. Three points still remain. The first is that the jail population is constantly changing. To maintain through 10 years a daily average population of 13,000, over a quarter of a million of prisoners have passed through the prison gates. The second point is that the official statistics of admissions to hospital for any disease include each year all sick remaining in hospital at the close of the previous year. It follows from this that more admissions are shown than correspond with the actual sick. The third point is that any prisoner detained in jail in default of security may be released at the discretion of the Magistrate under Section 124 of the Criminal Procedure Code if such prisoner is in danger of death. No prisoner of this class need die in jail if the Medical Officer takes steps to have him released. As this class forms a large section of the prison population, possibly 10 per cent or even more, it is obvious that certain potentiality for miscalculation exists here.

Table I shows the statistics of phthisis in Bengal jails during the 10 years ending 1907. It may be noted that the figures are shown as including Tubercle of the Lungs, Tuberculous Phthisis, and Hæmoptysis due to Tubercle. This is the official heading for which I am in no way responsible. In this table the statistics are grouped in accordance with the official divisions of Bengal, and all statistics referring to those districts which are now included in Eastern Bengal have been eliminated.

The daily average population during the 10 years was 13,142, to maintain which, as I have said above, over a quarter of a million prisoners have contributed 3,215 deaths have occurred, of which 588, or over one fifth were due to phthisis. The death ratio in the several divisions show remarkable variations.

The mean death rate for the whole Province was 24.4 per mille, and from phthisis alone 4.5. Burdwan and Presidency Divisions accounted for 345 deaths from phthisis out of 588 or $\frac{2}{3}$ ths of the total though they only contributed $\frac{2}{3}$ ths of the population.

Except in the Bhagalpore Division phthisis was more fatal in Central than in District Jails, Alipore Jail alone with a death rate of 8.4 per mille contributing $\frac{1}{4}$ th of the total deaths from this disease. It is remarkable, though, that could we exclude phthisis, Alipore Jail would present the lower death rate from other causes in the Province. It may be noted here that of the Central Jails the Alipore is the only one that shows overcrowding.

Why should Central Jails show a greater mortality from phthisis than District Jails? Is it because they contain a greater proportion of long term prisoners? On the other hand why should District Jails exhibit a larger general mortality than Central Jails? The inclusion of Berhampore District Jail in this table requires a word of explanation. It has been proposed, in the near future, to collect all cases of phthisis of the Province in one jail, and this jail is the one selected. It was to discover whether the selection was justified that I worked out the statistics. It would appear to be, though statistics based on so small a daily average population must be accepted with reserve.

Table II is a chart showing the admission rates from phthisis in the jails of Bengal. I have combined the curves of the Burdwan and Presidency Divisions, and called them Lower Bengal. Personally I think admission rates are of minor importance as evidence to base any conclusions on. In the first place they are defective for the reasons stated above. In the second place a good deal depends on the personal element of the Medical Officer and especially of the Medical Subordinate. It will be noted that the admission rates for the second half of the decade are much higher than those of the first half. Are we to argue that the disease is more prevalent latterly, or that more care is taken to selection and diagnosis?

Table III shows admission and mortality curves. While the admission rate in the second half of the decade has increased from 13.2 to 17.8, the death-rate per thousand is slightly—very slightly—diminished.

Table IV shows mortality according to geographical distribution. The very irregular curve of Chota Nagpore is noteworthy.

Table V compares the phthisis mortality of the three Central Jails—Buxar, Bhagalpore and Hazaribagh, i.e., the jails which show the lowest mortality. It is interesting to note how the curves of Buxar and Hazaribagh approximate. Is it unreasonable to suppose that some common factor contributed to this? What is the factor? The year 1900 was most unhealthy. It is difficult to assign a cause to the heavy mortality in Hazaribagh.

Table VI is interesting, because it contrasts the phthisis mortality of the Alipore and Presidency Jails—two large Central Jails situated within a mile of each other and subject therefore to almost the same conditions of climate and surroundings. The rise in 1899 may be compared to a similar rise in 1900 in the 3 jails referred to in the last table. These two curves exhibit so closely similar variations that it is difficult to avoid the conclusion that some factor common to both jails was at work. I think it disposes of the cry so commonly raised that jails are the cause of phthisis. Why phthisis in the Alipore Jail should be so much more fatal than in the Presidency Jail I am at a loss to say. It has been said that the Jute Industry at Alipore is prejudicial. It has been found, however, that the majority of fatal cases had not been employed in the jute factory. Moreover Bhagalpore with its Woollen Mills shows the lowest death rate from the disease.

The curve of Bhagalpore Jail is shown here to contrast the jails of minimum and maximum death rates.

The curve of annual rainfall is shown, but analysis of rainfalls of different districts shows that there is no resemblance between the rainfall curve and the phthisis mortality curve. What the effect of the absolute humidity of each place on the death rate may be I have not considered. There is undoubtedly some connection.

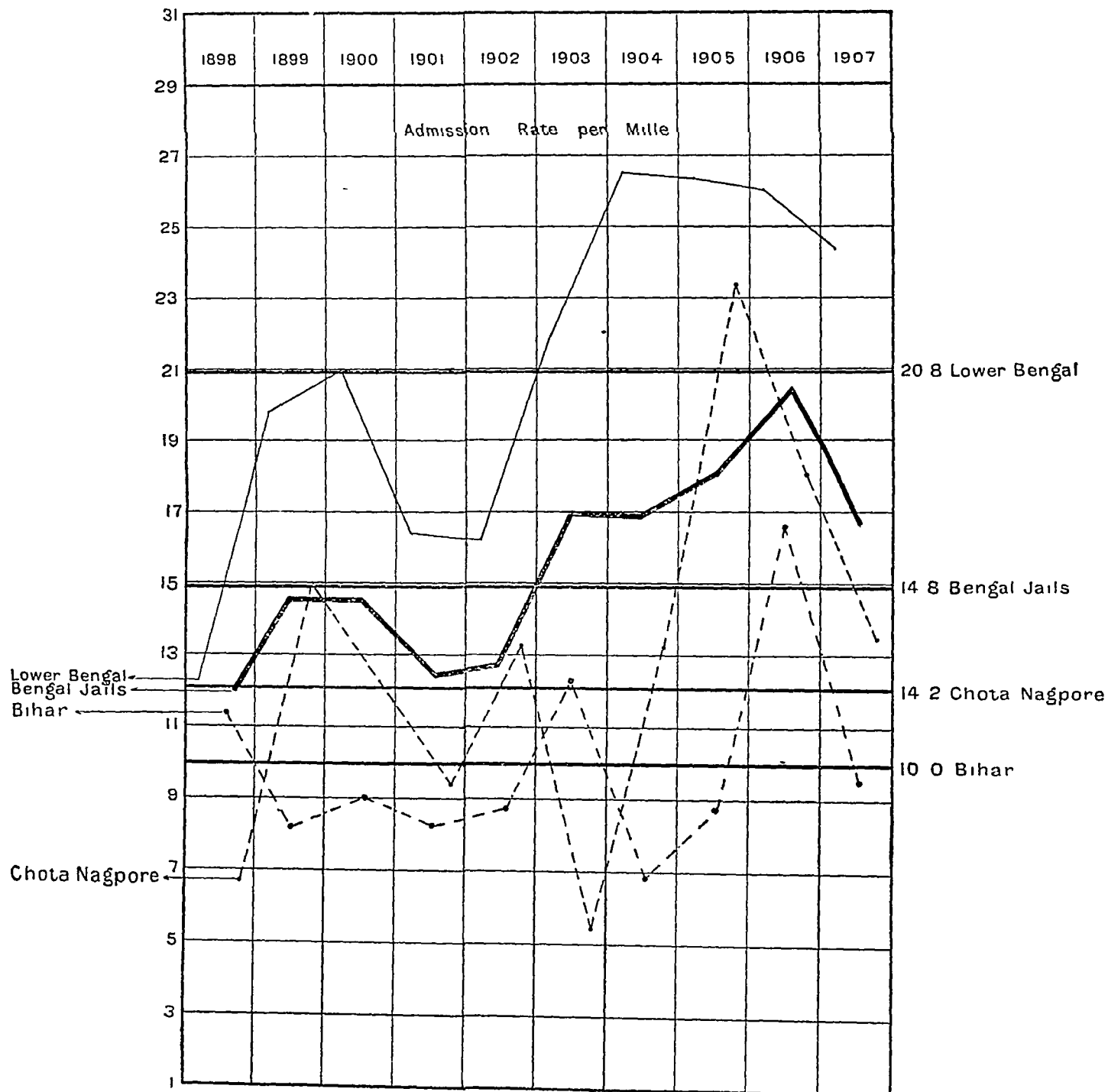
* A Paper read at the Medical Section, Asiatic Society of Bengal.

TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I M S

No II

CHART SHOWING THE ADMISSION RATE FROM TUBERCLE OF THE LUNGS
IN NATIVE CONVICTS IN THE JAILS OF BENGAL, ACCORDING
TO GEOGRAPHICAL DISTRIBUTION, DURING 10 YEARS
1898—1907

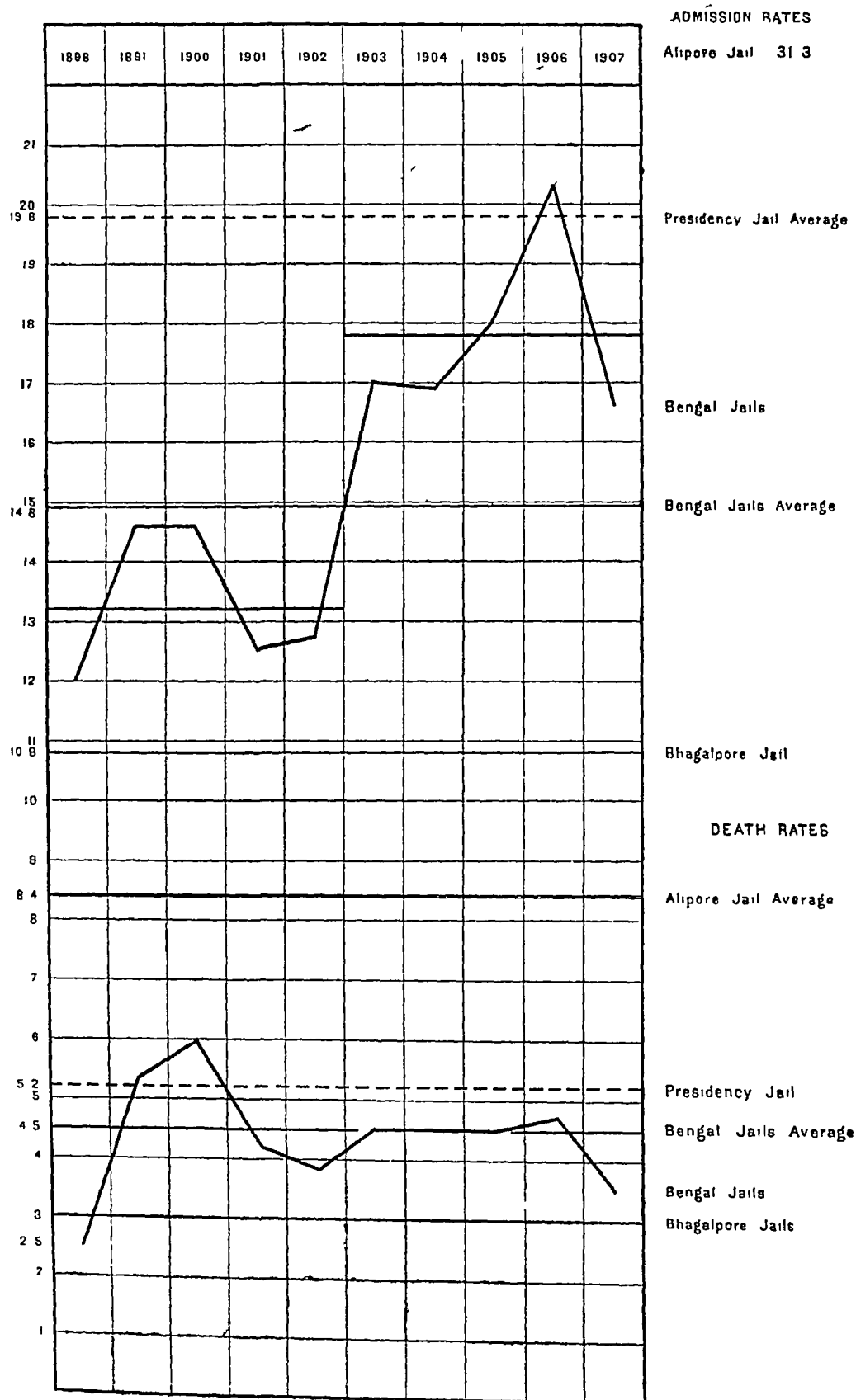


TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I M S

No. III

CHART SHOWING THE ADMISSION AND DEATH RATES OF NATIVE CONVICTS
IN THE JAILS OF BENGAL AND IN THE PRESIDENCY AND ALIPORE
JAILS FROM TUBERCLE OF LUNGS DURING THE 10 YEARS
1898—1907.

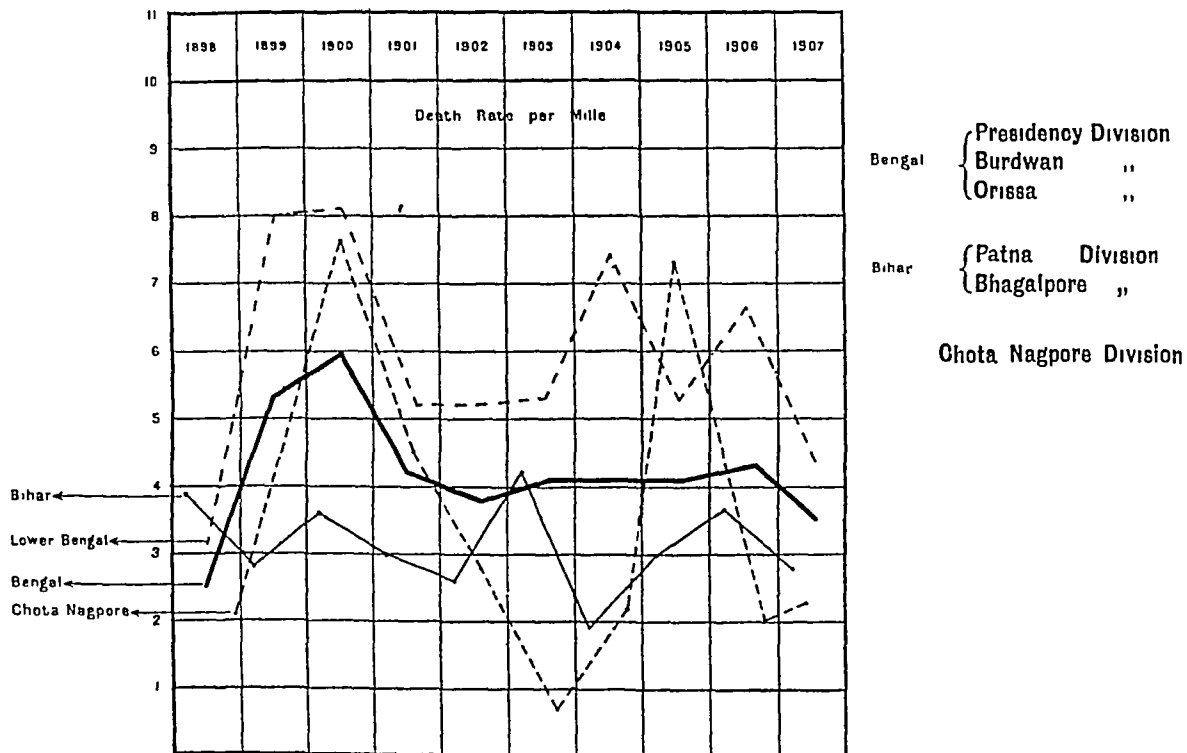


TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I M S

No. IV

CHART SHOWING THE MORTALITY FROM TUBERCLE OF LUNGS IN NATIVE CONVICTS OF THE JAILS OF BENGAL, BY GEOGRAPHICAL DISTRIBUTION, DURING THE 10 YEARS 1898—1907

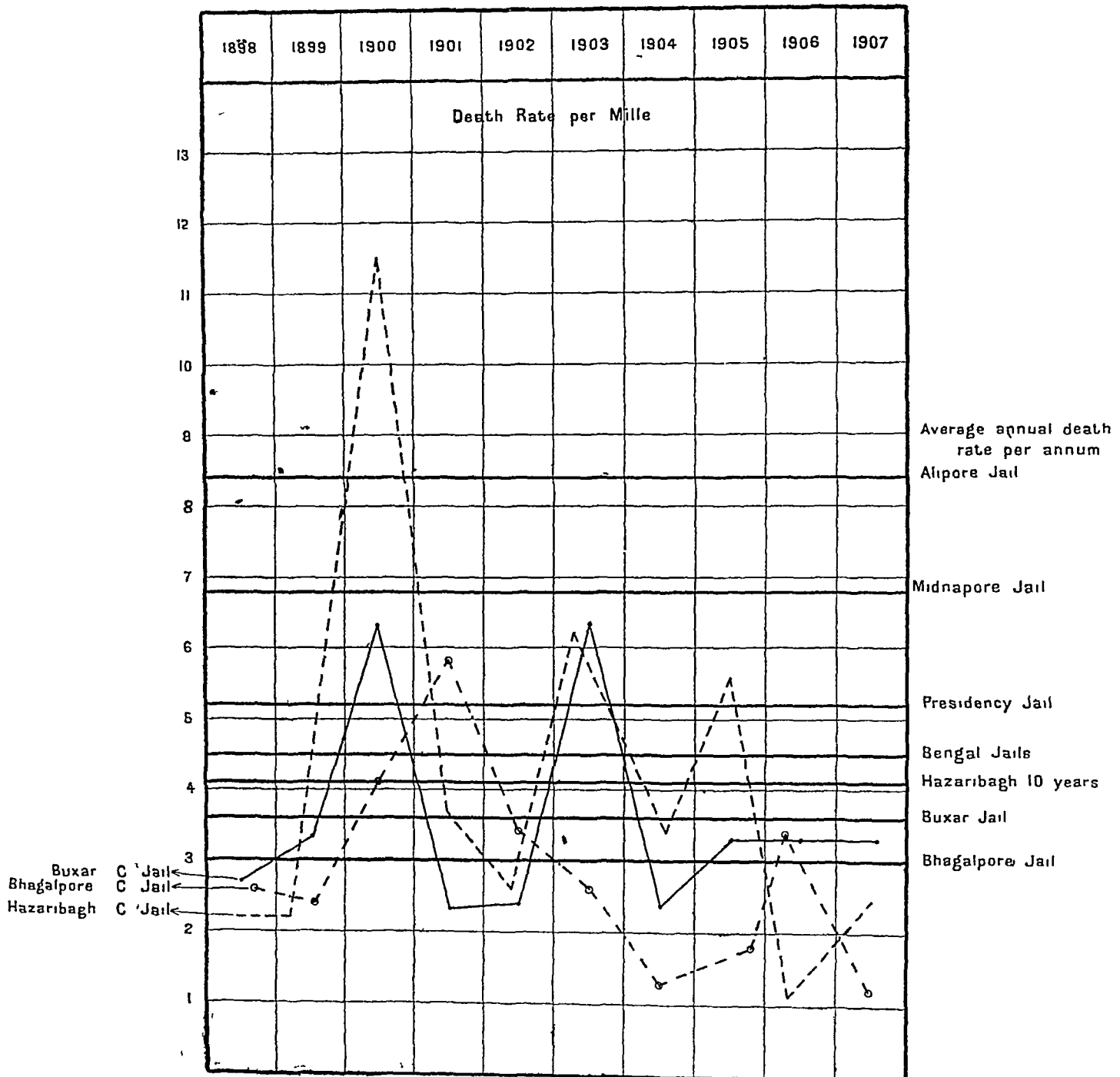


TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I.M.S.

No V

TABLE SHOWING THE INCIDENCE OF TUBERCLE OF LUNGS IN NATIVE CONVICTS IN THE BUXAR, BHAGALPORE AND HAZARIBAGH CENTRAL JAILS DURING THE 10 YEARS 1898-1907

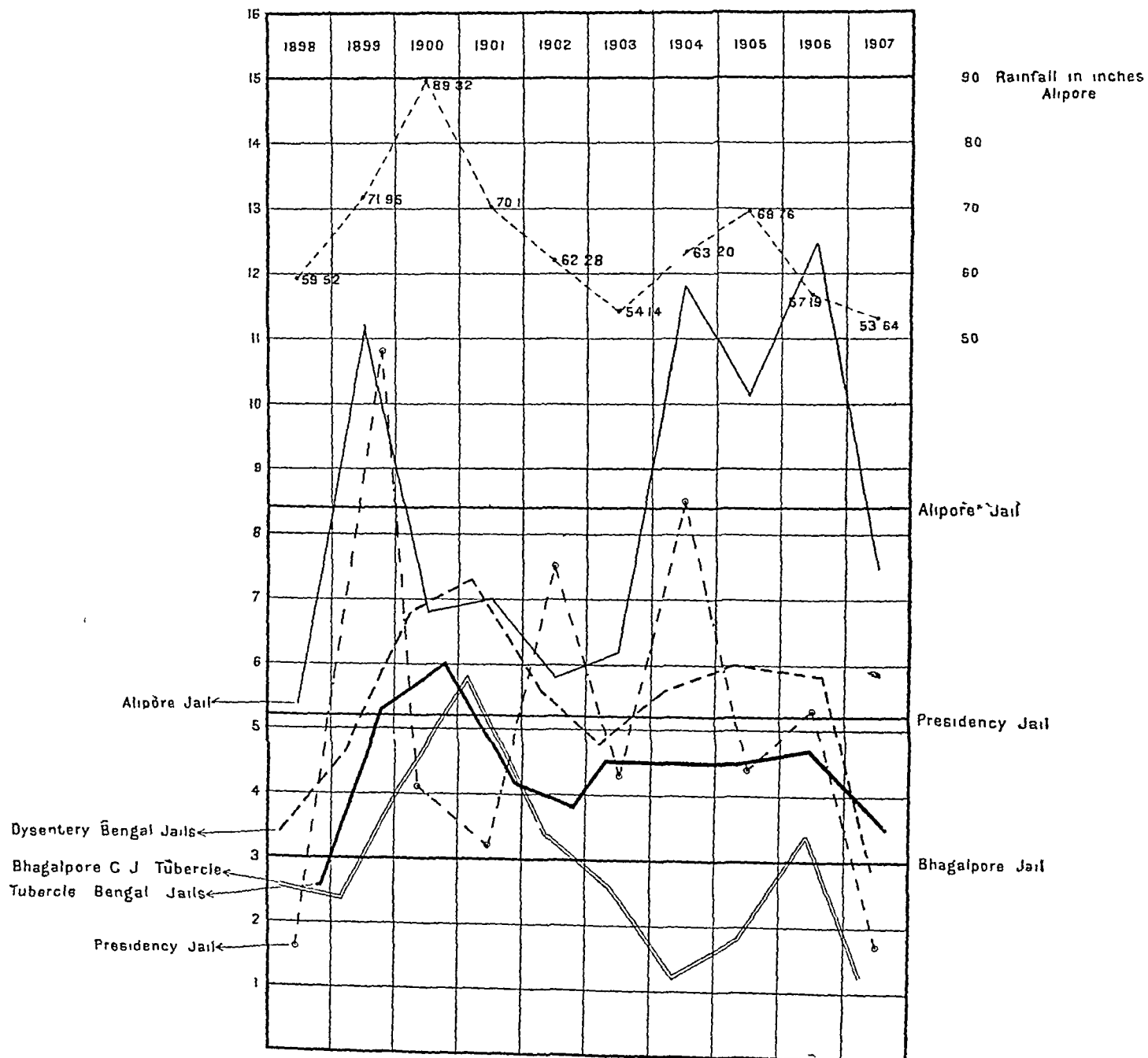


TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I.M.S.

No VI

CHART SHOWING THE INCIDENCE OF TUBERCLE OF LUNGS
IN NATIVE CONVICTS IN THE ALIPORE,
PRESIDENCY, AND BHAGALPORE CENTRAL JAILS, AND ALSO THE
MORTALITY CURVE OF DYSENTERY IN THE JAILS OF
BENGAL DURING THE 10 YEARS, 1898-1907



TUBERCLE OF THE LUNGS IN BENGAL JAILS

By MAJOR JOHN MULVANY, I.M.S.

No VII

TABLE SHOWING THE INCIDENCE OF TUBERCLE OF LUNGS IN NATIVE CONVICTS IN THE MIDNAPORE JAIL AND BURDWAN DIVISION AND ALSO IN THE BUXAR AND BHAGALPORE CENTRAL JAILS

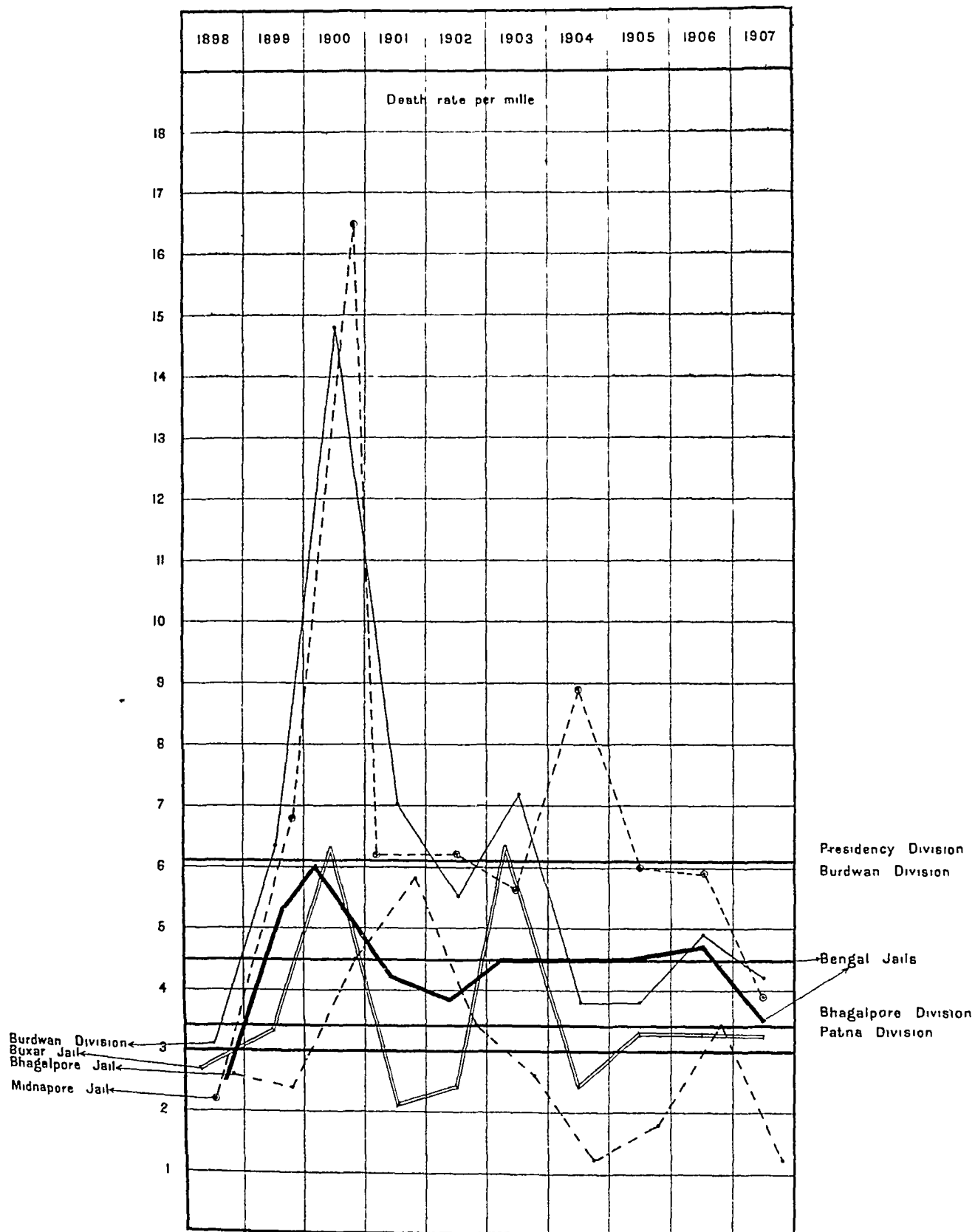


Table VII is interesting as showing the extraordinary rise in mortality from phthisis at the Midnapore Central Jail, a rise showed by Hazaribagh and, to a less extent by Buxar Central Jails, but not by the Alipore and Presidency Jails. There is one final point of interest about this Table to which I would invite attention, and that is—the marked resemblance between the curves of mortality and dysentery in Bengal Jails. I will attempt no explanation of it.

In conclusion I would point out that judging from these statistics of death verified by *post mortem* examination, there is no doubt that the Division classified as Lower Bengal have a higher fatality from phthisis, and further that there is very little to choose between Bihar and the Uplands of Chota Nagpore. If anything, the former is more favourable.

Putting aside the question for a moment, as to whether this latter point is correct, it is the purpose of this article, to describe the characteristics of a fairly common type, of cases, in this country, hitherto classed usually as melancholia but, which appear to the writer, to belong to this latter disease, and in any case, to form a definite clinical entity.

The following are short notes of three cases typical of many others seen here—

Case 1—Gunda Singh admitted 29th May '07. The history sent with this man was delightfully vague, consisting chiefly in the statement that he

TABLE

Showing the Statistics of Tubercle of the Lungs, Tuberculous Phthisis, and Hæmoptysis due to Tubercle among Native Convicts in Bengal Jails during 10 years, 1898—1907

Division*	Registered Accommodation	Daily average Population	TUBERCLE		Deaths from all causes	DEATH RATE PER MILLE PER ANNUM	
			Admissions*	Deaths		Tubercle	All causes
Burdwan	2,027	1,887 08	454	116	677	6 1	35 8
Presidency	3,519	3,733 09	804	229	828	6 1	22 1
Patna	3,507	3,187 24	295	95	739	3 0	23 1
Bhagalpore	2,263	2,288 97	246	77	451	3 4	19 6
Orissa	730	585 86	47	19	152	3 2	26 0
Chota Nagpore	1,556	1,459 88	188	52	368	3 5	25 2
Bengal Province	13,602	13,142 12	2,034	588	3,215	4 5	24 4
<i>Central Jails only</i>							
Midnapore	974	917 17	229	63	365	6 8	39 8
Alipore	1,597	1,730 12	500	145	377	8 4	21 8
Presidency	1,076	1,179 58	203	61	241	5 2	20 4
Presidency & Alipore	2,673	2,909 70	351	103	309	7 0	21 2
Buxar	1,197	1,228 94	124	44	208	3 6	17 0
Bhagalpore	1,717	1,664 12	166	48	280	3 0	16 8
Hazaribagh	1,050	933 29	134	39	205	4 1	21 9
Central Jails	—	7,653 22	1,355	400	1,676	5 2	21 8
<i>District Jails only</i>							
Burdwan	1,053	969 91	225	53	312	5 5	32 2
Presidency	846	823 39	101	23	210	2 8	25 5
Patna	2,310	1,958 30	171	51	531	2 6	27 1
Bhagalpore	546	624 85	80	29	171	4 6	27 3
Orissa	730	585 86	47	19	152	3 2	26 0
Chota Nagpore	506	526 59	54	13	163	2 5	30 9
District Jails	—	5,488 90	678	188	1,539	3 4	28 0
Berhampore Jail	—	223 46	17	2	43	9	19 3

KATATONIA IN INDIA

BY G F W EWENS, M D,

MAJOR, I M S

*Superintendent, Punjab Asylum, Lahore

THE writer recently contributed a small paper on Dementia Præcox, a form of insanity usually spoken of in Germany as consisting of three varieties—Hebephrenia, Dementia Paranoides, and Katatonia.

had been insane some six months and had been "bound" at his own home, (so that it may be concluded he was troublesome) and that when brought to court he was naked, and mute.

Beyond this and that he remained quiet for long periods, did not talk rationally, had a vacant look, was dirty in his habits, at times assaulted others "while being cleaned," had a good appetite and slept well, nothing more could be learnt of him.

On arrival, he was an extremely well-made good looking man, about 25, the body very hairy, with an unusually long nose, he came into the room in a curiously bent attitude, the hands and arms extended before him, maintaining this all the time of his examination, his lips moved but he did not speak, he several times made dashes to seize those standing by and was always doing some foolish act and was very keen on repeating one phrase in answer to every question "Di Sahib ka bacha Gugianwalla, Gugianwalla, etc"

Almost the entire trunk was covered with curly black hair, the ears were small and everted, there was much twitching of the facial muscles, the palate was narrow, and the right eye had a median vertical scar across the iris, reflexes were all exaggerated, he slept well, resisted strongly all examination of eye and lungs, etc

Yet there was no reaction obtainable to the severest sensory stimulus, as a rule, he maintained absolute silence, but occasionally did speak, but then though coherently in a theatrical manner

He obviously understood anything said to him, but usually gave no reaction, and his attention seemed self absorbed, as though he was always in deep thought and could only with great difficulty be aroused

Later it was evident that he had a good memory and it was inferred that he had hallucinations, from the first he was filthy in his habits and habitually went about naked. He would generally not obey, indeed usually did exactly the reverse of what was asked of him, he was most markedly cataleptic during all the time he was in the Asylum

From then until he left the Asylum in October 1908, he remained much the same, he would at first do nothing, but later on was induced to perform simple work, carrying buckets of water, etc, though this he usually did naked, he would, if one appeared near, suddenly drop the buckets, stand perfectly erect, absolutely like a statue and say "*Cigarette do*" (he was abnormally fond of these), take one when given him and wait for it to be lighted, and then continue working, very rarely was he clothed, on being called he would strip himself naked, before coming up, and often he was wantonly indecent, standing naked and playing with his genitals while under observation

It was impossible to converse with him, for either he maintained silence, or gave monosyllabic replies

He became very destructive to clothing, or any thing he could get hold of, was always assuming or maintaining some curious attitude or doing some foolish impulsive act

He would silently crawl forward or come quickly up always like a statue and then snatch at something. At all times he ejected saliva in large quantities

His speech curiously enough could be sensible, but in that as everything else he did exactly as he liked, and his phrases and replies when he made any were often whimsical, and even clever and accompanied with some curious behaviour

Gradually he became a little more amenable, and easier to make speak and work, but with this was sometimes a little noisy, and obtusive and always very definite, and insistent on his wants, and in having his own way. Though he became clean in his habits nothing however would make him wear clothes, and late in October 1908 his people having come for him he was removed by them on the usual bond of security for his proper care and treatment

Case 2 — Hera, admitted to the Asylum 18th August 1907. This man, aged 25, was brought to the Asylum under the impression that he was an escaped lunatic, as he was found wandering helplessly about in the nullah close by, appearing dazed and stupid, and the men could make nothing of him

He was certified as refusing to speak and as sitting all day crouched up in one attitude, or else wandering helplessly about, and being incapable of caring for himself

On admission he was noted as being a fairly well nourished man with a dazed look, usually crouching on the ground with saliva trickling from him, hair long and matted, clothes untidy and dirty, rarely speaking, and then only in monosyllables it being quite impossible to get any history out of him

He was cataleptic, gave one the impression of being in great fear, only occasionally obeyed but did not actually resist, and whenever he did speak, it was always after an interval of quick breathing, attended with quickened pulse

His articulation was natural, he showed every sign of being very emotional, his appetite was good and he ate any food given to him and slept well. The skin reflexes were active, the knee-jerks sluggish, there was no rigidity of joints. He was extremely cataleptic, it being possible to make the limbs assume and retain any position. Even the most painful cutaneous stimulation only produced a slight blinking

He wandered helplessly about and his attention could not be aroused from its fixed uniform condition

He obviously understood everything said to him, but his replies were difficult to elicit, and then only monosyllabic and it was not possible to test his memory

His habits were clean, he was not destructive, and at first wore clothes, and was modest, but later became at times indecent, playing with his genitals openly

He only occasionally obeyed, for some months he remained in this condition, very cataleptic, always either sitting motionless in one spot or wandering helplessly about, but it was noted that he would assume curious attitudes, would walk backwards with his hands in the air,

(this he did for months), etc, etc, and that he had the capacity for making curious vertical movements, with his larynx, so that the thyroid seemed to move up and down

Gradually he improved a little, uniformly obeyed and began to work under supervision, but the condition was liable to be broken with sudden intervals of obstinacy, in which he would stand erect silent, with the eyelids quivering

He was always much more natural, when he thought himself unobserved, usually he ate all given him, but only at certain intervals

During February 1908, he was noticed though still cataleptic to be even more given to assuming curious attitudes and to be liable to make sudden impulsive movements, and to frequently resist everything

He very rarely spoke, but when he did his speech was sensible

By April while still cataleptic it was noticed that he had developed a curious habit, on seeing one, of walking straight up, standing absolutely motionless with a fixed gaze, coming up slowly and silently without being called, keeping the body absolutely rigid often with one hand extended, so that he appeared like a mechanical doll, at that time he would sometimes speak a little, and then often made curious and foolish requests which sometimes he would suddenly shout out

To the present time, December 1908, he has continued practically unaltered, clean silent statuesque, with these curious automatic movements, always cataleptic, usually obedient, the expression vexed, and troubled, but lately, as before said, has become wantonly indecent

Case 3—Alla Ditta, admitted on the 10th January 1908 Alla Ditta's age was said to be 32, he was brought by his father and mother, who could not give any history, except that he had been insane, since 1904 Had become so from "God's will," and had been so troublesome at home breaking everything, that they could not keep him there any longer

He was certified as resisting everything that was done for him, shouting and screaming disconnected nonsense at any attempt to examine him, so that he could neither be touched nor conversed with, on admission, he was a bent-up miserable man, very self-willed, and obstinate, who resisted most strongly everything he was requested to do, if one attempted to pull him along he drew back, if his arm was raised he depressed it, he hit everybody who approached, and was continually muttering to himself

It was impossible to auscultate his lungs and heart, or examine his eyes or abdomen, as he struggled and resisted so strongly, nor could one test his reflexes all the muscles were rigid when he was touched, and every movement he made was exactly the reverse of what was desired of him, nor would he reply to any

questions, though it was obvious he understood everything, and that he localised and perceived every cutaneous stimulus he ate everything given him and was at first clean in his habits, but would wear nothing except a blanket, wrapped around him, and at times tore and broke every article within reach It is scarcely necessary to say that he would not obey nor would he occupy himself in any way, but spent the entire day, moving slowly about, hidden in his blanket at times grumbling, in a monotonous tone, his sentences being coherent He continued in this manner, resisting everything requested of him, it being necessary to push him up by main force when it was required to examine him, at which time he howled, and cried loudly

He fought and bit any one approaching him, and on one occasion had the tip of his nose bitten off by another lunatic, (an insane of equally determined dispositions) after a few months he was with much persuasion induced to carry a bucket of water, the simplest kind of work he could be tried with, but as he at once proceeded to empty the whole contents in one particular spot and began to grumble, howl and struggle when remonstrated with, it was decided to let him remain idle

Lately he has not been so clean and has taken to being indecent, and continually imitating the act of defecation, but with that exception he has remained up to the present day the same, a mute resistive mass, yet speaking sensibly when he occasionally does so of his own accord, just as naked, obstinate, dangerous and impossible to reason with as he was on admission twelve months ago

Katatonia was originally described by Kahlbaum, in 1874, as a malady characterised by a peculiar condition of stupor in patients, showing "negativism," automatism, and muscular tension, or excitement with stereotyped, verbiage, echolalia leading with or without remission in most cases, to a condition of depression, from which the patient passes into stupor, this being often from time to time, interrupted by a sudden interval or intervals of excitement, but finally ending in Dementia, this often, however, being preceded by periods of remission simulating recovery

In India, however, it cannot be so certainly stated that this termination is the rule. Many of the cases seen here do recover, they may not be so sensible, or so able, as they were, before the attack, they rarely are, but recover many do, and when periods of comparative sanity, may be seen to endure for long periods (sometimes years), it is a mere misuse of terms to insist on their being styled a remission

One thing is however undoubted and that is the disease is always of long duration, five, six, eight years, being not at all uncommon

Many of them die, of some intercurrent disease pneumonia, tubercle or diarrhoea during it, but

given then escaping these recovery at least in this country may usually be hoped for

Almost all writers describe the malady as commencing slowly by a period of mental depression, when the patients complain of headache, difficulty of thought, insomnia, loss of appetite, great anxiety, fear of impending danger, and they relinquish their occupation

From the first there are hallucinations, and delusions, that the body feels full of lice, spirits speak into their ears, God dictates poetry to them, that some one is about to kill them. In Europeans, the delusions are usually of a religious subject. That the Almighty has forbidden them to eat, and that he or she, has caused destruction of the entire world, and only rarely are they expansive or of the sufferers having wonderful inventive powers, etc

In this country, however, where no one will ever go, or be sent, to an institution, until he cannot finally be retained at home longer, in this as in other varieties of mental disease, we never see a patient in the early stages and the vast majority of those we get here are people who have wandered away, in a state of semi-stupor, and have been found while in that condition, mute, cataleptic and often naked, and resistive, or who have been arrested while in the act of doing some foolish or illegal act, and so it happens that the police reports, sent with them, on first arrival almost always show something peculiar or unusual and in any case, unlike that sent with most insanes

One man here was found wandering about in the neighbouring nullah almost naked, dazed, and stupid, unable to give any account of himself

Another was found hiding in a second class railway carriage at Rawal Pindi, and could or would give absolutely no account of himself

Another was brought by his neighbours, because he had begun, unprovoked, to throw stones at them, and when they asked him to desist kept silence, but continued, then ran away and began "to cry loudly," he was caught and marched off to the Thana. On the way there he kept sitting down silently. Apparently he had before this gone to another village, and silently assaulted people

Another was arrested by the police, who found him wandering in the Bazar quite naked, "trying to get into various people's houses and talking absurdly"

Extremely early, however, under observation, it will be noticed that these people show some peculiarity of movement and muscular action, they will stand for hours in some fixed and awkward position. Erect in an attitude of prayer. Fall on their faces, on the floor, etc. If a European, doubled back in a chair, if a native, they will come into a room (often resisting strongly) with arms outstretched and eyes closed

Some present, it is said, some rhythmical action, frequently repeated—such, however, is very

unusual among natives of this country, but almost all at any rate shew the condition (and some will shew this at one time and not at another) characteristic of the disease, namely, catalepsy, the arms may be put in different positions and will remain so after one has left them for a long period, and of this there are varying degrees—in some the attitude given is only kept up for a few minutes and every gradation is seen, between these and those who can be left for half an hour, and on one's return will be found in exactly the same position

Undoubtedly, hallucinations are present from the first, though this is not always easy to make out, because, firstly, these cases are rarely seen at the onset, and later they are very frequently mute, and will not reply, and in others the strong disposition to be "contrary" shewn by them all will even, if they do speak, prevent them giving the necessary information to the question. But keep them long enough and closely enough under observation, and they will sooner or later own to their presence—they are most frequently auditory and visual and less frequently also tactual. From an early period they are said by various writers to show evidence of disturbed consciousness and apprehension to be unable to think clearly, and to be sad, dejected, irritable, distrustful, and threatening, all of which conditions, by the time patients arrive here, are always clearly and prominently evident

In the classical description this period is followed by the condition supposed to be characteristic of the disease, namely, that of Katatonie stupor and excitement. The state of stupor needs no explanation. A patient is motionless, silent, indifferent to every thing, but he also shows that which is peculiar to this disease, a condition of so-called "negativism," i.e. (names are of little moment, but this one is a particularly inapplicable one) a resistance offered to every movement proposed. The eyes tightly closed at every effort to open them, there is a backward withdrawal at any attempt to lead them towards you, and the arms are kept rigid at any attempt to lift them, etc

In fact, they resist and attempt the contrary to everything desired of them, added to this they are absolutely mute. No effort will induce them to speak. They will not eat (when in a non-stuporose condition, however, they often eat every thing given to them). They will get out and sleep on the ground after being put to bed, etc. Also the body is maintained in some one uniform peculiar position, even if that is of a most uncomfortable nature, but, on the other hand, a condition of catalepsy or *flexibilitas cerea* is described with this in which the limbs will maintain any position in which they are placed, but it is obvious that those in whom muscular rigidity is very marked are not cataleptic, others are said to repeat anything said, or to copy any action performed before them, i.e., they will repeat a question asked of them, instead of

replying, and will mimic the questioner, these two latter points being, however, extremely rare in this country, though catalepsy is almost invariable here.

These most opposite and contrary conditions, for example, muscular rigidity and catalepsy, are said to pass directly from one to another. Following or during this stage there are sudden outbursts of excitement, and of what are spoken of as stereotyped movements—the repetition for many times of one particular action, moving the arms to and fro, etc. The excitement is characteristically most impulsive, often being absolutely sudden. A man in a state of stupor will suddenly jump up and run round and round the compound, etc., will tear off his clothing, snatch at that of others, suddenly break anything around or perform some one limited action, some movement peculiarly impulsive and reckless, during this period the patient being often dirty, at this time, too, the mannerisms characteristic of Dementia Præcox are often said to be present, grimaces, peculiarities of intonation, mocking speech, syllabic utterances, all of which is comprehensible if Katatonia is really only a variety of this disease, which is the writer's opinion.

There is said to be accurate memory for these periods, and the malady is usually supposed to end in complete Dementia. Though Defendorf describes some 13 per cent, as recovering, and 27 per cent, as terminating in only a slight weakness of intellect.

In India one rarely sees any disease from the commencement, and still less often a mental one, so that it is impossible to prove the sequence of these various stages, and what generally happens is, that a man of this class comes before you with some peculiar history. He is usually robust, looks 20 or thereabouts, as far as can be judged, for no native here knows his own age. Europeans and Eurasians are usually much younger, and of poorer physique.

He looks usually in good health, and the body is often covered with black curly hair, it will be noticed that he is either in a state of stupor, mute and motionless, or that he holds himself, or acts in some peculiar manner, that he is cataleptic or, if not so, keeps all his muscles rigid, and resists every movement as already described. That he will either not speak at all or, if he does, uses some peculiar phrase coherent in itself, but senseless in its relation and that in particular there is none of that rapidity of speech, the divertibility and the flight of ideas characteristic of the maniac, nor is there the almost inaudible difficulty to elicit replies nor the wailing repetitions of the melancholic.

Nor do you see the constantly moving lips, from which no sound appears. This one gives you the impression of being self-possessed, and even of scheming cunning, often the eyes have a curiously furtive watching expression, though others show a marked and quite unobscurable

faculty of keeping them fixed in one direction, without moving.

If you can elicit information out of him (often impossible), hallucinations will certainly be found.

That voices speak to him, annoy him, that persons touch him, etc. Delusions are not usually evident, but close observation will convince you that his reasoning is very defective, what is noteworthy is that you may pinch him, prick him, apply any stimulus, and though you may be convinced that he feels, no reaction follows except perhaps a slight blinking of the eyelids, and many will allow flies to settle on their eyes and nostrils without moving.

The patient will usually sleep well, and when not in a state of stupor, will eat what is given, though many will only do so when alone. Many will often eject saliva in large quantities.

The skin is frequently greasy and clammy, the reflexes, skin deep, and are almost always a little exaggerated though the plantar reaction is always flexion.

As to habits of cleanliness this varies nearly always, these cases come in with a history, if any, of having been filthy with their excreta, but here at first they usually pass the feces and urine aside, but in the large majority, after an interval, they again become wet and dirty, many will not wear clothes, and are often wantonly indecent, and usually they will not obey nor do anything they are asked, but they are generally not destructive and usually content to lie down or sit in one place, regardless of every body, doing and saying nothing or to wander slowly about, naked or huddled up in a blanket. Later on by coaxing and persuasion some can be made to do a little work, but always only of a simple kind, none can be taught weaving or matmaking, etc.

I say cannot be, but it seems at any rate as though they would not allow themselves to be.

All are liable to sudden impulsive movements of the nature described and all have peculiarities of appearance, behaviour, and manner, that joined to their capacity for catalepsy and the presence of hallucinations, which can always be proved sooner or later, renders them very characteristic.

You see, for example, a man who has been here some time and who sleeps well, and who has been induced to do a little work in the garden, very simple work, and which he performs silently and, of course, always absolutely mute, at least at the sight of you, though the attendants will tell you that occasionally when so inclined, and when he believes himself not observed by those in authority, he will talk and that sensibly, as do all men with this disease, if you give him an order, instantly he stops in that attitude he was in when your voice reached him, but he does not obey, you tell him to get up he does not do so, you go to him, he makes no resistance when you pull him

up, but if you were to stop half way he would remain in the attitude you left him, nor does his gaze rise to yours, nor does he make any sign of attention, you put one of his arms up or one finger up, it will remain so and indeed you can in this way make him assume almost any attitude, however absurd, just as though you had been moulding him, and he will keep in it until the limbs fall from muscular fatigue.

In this particular man, from whom this example has been taken, if on moving away, for instance, you brushed past him, the limb you have so moved would remain in that attitude, but by no persuasion can you induce him to assume the same position by command, he simply does not move a muscle, those of the face and eyes particularly not changing in the slightest, he does not speak, if you count his respiration you will find that there is always some peculiarity, either at first the breath is held and you may be only able to count, say 4 a minute, or each is very superficial and a little hurried, 20 almost imperceptible movements, occurring every minute, the pulse is quickened and indeed the laboured quick breathing and the fixed staring expression often produces the impression that he is in a state of intense fear, though this for other reasons is very improbable.

Such a man shows a very striking contrast to another, who, in a different period of the same disease, may be stuporose and in such a state of muscular rigidity that all evidence of catalepsy is impossible to obtain.

The speech is, as above said, often quite coherent, though the contents may be silly and not bear any relation to the question it follows, some speak in an affected high pitched tone and often monotonously repeat one sentence, in itself it may be coherent such as "I have pain here, Sir," "I have pain here, Sir," etc.

Many of these persons have curious traits that might give reasonable suspicion to those unacquainted with them that they are malingerers.

If food is given into their hands, they may remain motionless without even regarding it, but after the giver moves away, as though when they believe themselves unwatched, they slowly turn and eat it, others will slide their blankets over the faces and eat it under cover of that, others, who will not speak to you or give any evidence even of hearing you, will speak when you are not by fairly sensibly to friends and relations who come to see them, another day they will be perfectly motionless and silent whenever in company, yet if left when they believe themselves unwatched and alone they will slowly, silently look furtively around to assure themselves that that is so, and then slowly and in silence, it is true, move and eat, adjust their clothing and act fairly sensibly, return and

they at once fall into their old attitudes of immobility.

A large number, as already said—and these are generally cataleptic—not only will not obey an order, but silently, actively resist any, you try to raise an arm, it has to be done by force, to raise the head, for they are usually looking at the ground and it has to be strongly pushed, suddenly cease doing so and from the muscular tension it springs forward with a jerk. Many Melancholics, it is true, show rigidity of the neck muscles and proximal joints, but then the peripheral ones are always freely movable, whereas in this grade of Katatonia there is universal (voluntary) rigidity of all muscles. Some of these latter may be said to "negatively" resist, you tell them to open their eyes they will instantly close them, to show the tongue, at once the lips and teeth are firmly set, to stand up, and they will sit down, and often it is only possible to get them to perform a desired movement by ordering exactly the opposite.

Extended observation, however, will convince you that these opposite and contradictory conditions are only phases of this same disease, and that were it possible—which it never is in this country—to acquaint oneself with a patient's history from the commencement to end of his malady, that each one would show them all in sequence.

All, indeed, are markedly "obstinate" in the ordinary acceptance of the term, they will do nothing that is asked of them.

All have some curious habit one will wear nothing but a blanket tied round his middle, very many—the majority here—will always go naked, many of them would allow themselves to starve to death rather than take food in the ordinary way, few are actively suicidal, but some of them are dangerous in the sense that they resist interference, and are liable at the period of their impulsive movements to utilize these to attack or injure those near.

All of them, in fact, give one the impression either of with strong determination acting apart, or of being supremely intent on having "their own way" and convinced that they are right in so doing, and regarding all control or persuasion as obnoxious and tyrannical, and they will show this either in the manner alluded to, or sometimes by a sneer of contempt, or a smile of superiority, or even an actual laugh as though at the folly of those around.

One woman here sits for hours in the attitude of a Buddha, but with a withering smile of contempt as one passes by. Though she has been heard to speak—and that very sensibly—to the native ayahs, when we address her, she never speaks, and on our arrival, not a muscle of her body, face or eyes even quivers, she will not eat, and is therefore fed twice a day through a nasal tube, at first she silently resisted strongly, and even relaxed her usual attitude to kick and bite, but now she allows herself as though conscious

of the uselessness of struggling, to be put on her back, and without being held permits the tube to be passed down, more than that, one nostril is smaller than the other, and if the sister in charge attempts that one, she shakes her head, until it is inserted in the other, or if the tube is not far enough down, she shakes her head, she rises into a sitting posture when this is over, and then often gives a low mirthless laugh.

The same woman formerly, after the feeding, would immediately go to the bathroom, put her fingers down her throat until she vomited everything, to prevent this her hands were tied behind her for a couple of hours.

After the first two days of this she herself would voluntarily place her hands behind for this to be done.

Another woman who was markedly cataleptic and whom I daily tested would immediately after I left her, though always silent, break out into peals of laughter.

Still all the same like every other lunatic, often ultimately they are susceptible to kindness and consideration, one woman here who has her face constantly in a typical "snautz-kriampf" position smiles and is obviously pleased at any notice taken of her by the sister and Doctor. This same woman, it may be added, was found wandering silently about the railway lines near a crowded station, no one knows her name, and though she has been here since the middle of 1906, she has never spoken, usually passes all her excreta under her, is cataleptic, hides her food under her sheet and eats under that and for months will not move from any position and resists every effort to make her do so, and even when she does walk, keeps in one fixed attitude with the eyes bent on the ground like an automaton. She also (rarely is true) suddenly attacks without provocation those around her.

At the same time it must be owned that none of these patients break out into those sudden outbursts of rage and murderous violence followed with complete forgetfulness of the period afterwards that are so characteristic of what I personally understand as chronic melancholia—the disease that accounts for the large majority of criminal lunatics in this country, and which forms at least a very definite clinical entity. This is the malady that Katatonia is most likely to be mistaken for, but such cases are never cataleptic, do not show resistance or muscular rigidity, will speak fairly readily and never suffer from hallucinations. Roughly, then, those seen here affected with this disease (Katatonia) are adults brought in usually with some peculiar history to account for their arrest, or who are described, if brought by friends, as having been insane for years—usually mute and depressed, showing in the very large majority catalepsy or if not, then marked muscular rigidity and opposition to all passive movements, or to anything asked of them,

many continuing for a long period in a state of stupor, while all show no reaction to any painful stimulus, have then reflexes a little exaggerated, are at some time or another filthy but usually eat and sleep well, and hallucinations are present in all, and that from an early period, though they may be extremely difficult to make out.

The majority present numerous peculiarities, tricks or mannerisms, of a striking character that particularly remind one of the other varieties of Dementia Præcox, and which often lead those unacquainted with such diseases to suspect them of malingering. All are at any period liable to perform sudden impulsive acts, and many are for that reason dangerous.

The disease is of very long duration, usually lasting at least eight years in this country, but ultimate recovery may be hoped for, and this is especially so in those cases seen with prolonged stupor. A certain number of them occasionally suffer from convulsions, or "congestive seizures" at long intervals, following which they may be for some time dazed and stuporose, and it must never be forgotten that a certain number of cases of true epilepsy in their bearing and manner at times resemble Katatonia and the diagnosis between these two diseases has always to be thought of.

Were it of any practical utility to theorise, one would be tempted to suggest that Katatonia, at any rate, if not all the varieties of Dementia Præcox, is a disease resembling General Paralysis, of the insane, in that it is technically an ordinary nervous disease, because many of the cases present curious phenomena such as excessive salivation, respiratory and cardiac disturbances, constant yawning, the increased knee-jerks, the congestive seizures above alluded to, curious inexplicable periods of raised temperature, anomalous spasmodic movements resembling a "tic" and more rarely temporary palsies of the ocular muscles, while Defendorf has also described vasomotor disturbances and "diffuse enlargement of the glands," neither of which have as yet come under my own observation.

No treatment is as yet known.

In conclusion, the brief history is given of a case, originally reported in the *Indian Medical Gazette*, October 1902, as that of one differing from ordinary melancholic stupor, which very well illustrates the character of prolonged Katatonic stupor and the possibility of subsequent recovery.

A H, aged 35, admitted 21st July 1900, under sections 466 and 471, C1 P C, in consequence of having murdered a little girl by hitting her with a *tokka* immediately after, and as he states in revenge for her mother having abused him. He is said to have been insane for eight years, his mental condition having been supposed due to "hereditary taint aggravated by masturbation."

On admission he was described as a short thick-set man, who always maintained a curious attitude, standing with hands clenched and arms semi-flexed, head bent and both eyeballs slightly deflected to the right—only very rarely looking one in the face. There was, however, no spasms or paralysis, and the man had perfect movements of all his muscles. The countenance had a fixed grinning smile, the skin was hot and sweating, natural in colour, the mucous membrane not anæmic, the teeth white and perfect, while the tongue could not be seen, for like many Katatonics this man “resists every thing required of him but in an active manner.” If asked to move he sits down, if to stand, the same. To move him it was necessary to drag him along, he obviously understood every thing said to him, but beyond some very occasional wailing reference to “*zulam*” he would not speak and never answered. “He takes off all his clothes and is very filthy, passing urine and fæces under him where he sits, he will eat only when food is placed in his hands, but otherwise never asks for anything, and in general never moves or speaks nor can anything or anybody arouse him.”

For months he remained coiled up in his cell motionless, silent and filthy, latterly becoming still more resistive, so that when raised he stiffened all his muscles, and would be raised maintaining exactly the same position as on the ground. He gradually began however to give occasional wailing utterances, then to ask for food, and on the 20th September suddenly began to speak, giving a long and coherent statement of his having been “unjustly” imprisoned, and that the grief of this had affected his mind. He still, however, kept the limbs rigid and resisted any forced movement, and though up to December he improved a little in that respect, he then again became rigid, silent and motionless, he still, however, would then feed himself, but would not do that when requested, but would first keep the food by him for hours. With occasional remissions since then he has gradually improved and was for long in a condition of ordinary simple melancholia, but still obstinate, and would not occupy himself in any way. He professes to have a perfect memory of every thing since admission.

He is now, December 1908, practically sane though of vicious habits.

ANTISEPTIC SURGERY IN FRONTIER WARFARE

By A. E. BERRY, MAJOR, I.M.S. AND R. C. MACWATERS
CAPT, I.M.S.

GREAT differences of opinion exist as to the possibility of carrying out antiseptic work properly in a field hospital, and this no doubt is

largely due to the very varied conditions under which they have to work. Never perhaps have these been more unfavourable than during the South African war, where the wounded often arrived many hours after being hit, or in such numbers that it was quite impossible to give more than a few moments' attention to each. Under such circumstances it is not surprising that the results were often disappointing, but there is an unfortunate tendency to draw general conclusions from them, and we have sometimes heard the re-dressing of wounds on reaching the hospital condemned as useless or even harmful.

In frontier warfare the conditions are much more favourable. Most of the wounded arrive in hospital from $\frac{1}{2}$ to 2 hours after being hit, while the numbers are, at any rate, small enough for each wound to be thoroughly cleansed, though it may be impossible to explore as many cases as one would wish. Under these circumstances want of confidence in one's antiseptic measures is likely to do more harm than good, and we think that every case should at least be thoroughly cleaned with razor, nailbrush, carbolic lotion, etc., preferably under an anæsthetic.

One of us had the opportunity of seeing nearly all the cases sent down from the Zukka Khel expedition, and they were asked if they had been re-dressed in the field hospital. It was noticeable that severe injuries which had escaped suppuration had for the most part been re-dressed early, often under chloroform, while few of the suppurating cases had been so treated, and the experience of the 10th N. F. H. during the Mohmund expedition further emphasizes the value of a confident use of antiseptic methods.

Out of 96 wounds treated in this hospital 10 suppurated. Of these one communicated with the mouth, another was inflicted by a stone which had been struck by a bullet, and two were cases in which a Martin bullet had been left in the wound. All these were cases specially liable to suppuration, so that only six remain to be considered. All of these, with one exception, were cases of fracture which were not explored, and later, on X-ray examination, proved to be much comminuted. Two of these, moreover, were only seen 6 hours after the injury, and another had been 4 hours without a dressing of any sort. At Malta there was a dust storm blowing the whole time the wounded were being treated, yet out of 30 cases only two suppurated, including one of the cases already mentioned as having a bullet left *in situ*. The other was the only flesh wound which suppurated.

Little need be said about the antiseptic measures employed, the details were practically identical with those laid down in Cheyne and Bughard's “Manual.” The so-called aseptic

methods were entirely rejected as being unsuitable under any but the most favourable circumstances. The water for making lotions was sterilised by means of Nesfield's tablets, though as nothing weaker than 1—40 carbolic was used, we should not have hesitated to use even the unsatisfactory water of the Mohmund country without further treatment if necessary, trusting to the antiseptics to purify it. The new hospital equipment contains a liberal supply of cyanide gauze, and dressings of this were always employed, they were not purified except by wringing out of carbolic lotion. Wherever anything in the nature of operative measures was required, the neighbouring parts were covered with a towel soaked in carbolic lotion.

Even up to 8 or 12 hours after the injury there is a chance of effecting purification, but after that any infecting organisms which may be present have penetrated deeply into the tissues, and are likely to be beyond the reach of antiseptics. In such cases the original first field dressing may well be left, but the process known as packing is generally desirable. The first field dressing is small in bulk and usually arrives at the field hospital saturated with blood. It is well therefore to remove the outer layers, and to soak the remainder with 1—40 carbolic lotion, applying abundant gauze and wool on top in times of great pressure of work, the same procedure would probably be better for simple wounds, even when seen early, than imperfect and half-hearted attempts at purification, but in that case 1—20 carbolic lotion should be substituted, and used freely in the hope of thereby effecting disinfection of the surrounding skin.

We notice that no cases disinfected under an anæsthetic supplicated and we regret we did not use chloroform more frequently, for without it one inevitably shirks a thorough scrubbing of any large wound. In a few severe fracture cases which looked very unlikely to do well at the time, we explored the wound to remove detached fragments and to disinfect the deeper parts, and with good results. Even if suppuration had not been prevented, the patients would have been in a better position to make a rapid recovery and to escape the numerous sequestriectomies which so often delay recovery for months or even years these detached fragments moreover are a frequent cause of non-union. In these cases we think that operative procedures are justified even at the cost of a slight risk of infection. It is the object of this paper to show that under frontier conditions these risks need not be great, and are more than counterbalanced by the hope of removing septic material. Our general impression is that where suppuration occurred among our cases, it was the result not of too much manipulation but of too little. This view is identical with that expressed by Surgeon-General Stevenson "I have always

held" he says, "that where explorations can be carried out with due precautions as regards antiseptics, they should be made, and now that I have had two years' further experience at home of the treatment of the wounded from South Africa, I am more certain than ever that this view is the correct one." He goes on, however, to say that "thoroughly antiseptic procedures were practically impossible during the Boer war except at stationary hospitals in consequence of the universally foul condition of the water, and perhaps for other reasons." In frontier warfare, as we have said, the conditions are better, and most kinds of operative work may be fairly undertaken provided there is sufficient time to do it carefully.

With regard to abdominal work we had 6 cases of bullet wound of the abdomen. Only one, a wound of the liver with considerable hæmorrhage, was operated on, and this was the only one to recover. It would be foolish to draw conclusions from a single case, but probably more operations should be done on the frontier than were considered desirable in South Africa, for many of the cases are Martini bullet wounds and are much less likely to recover spontaneously than the Mauser wounds of South Africa. The treatment of general peritonitis moreover is at present being revolutionized, chiefly through the work of Murphy of Chicago, with a reduction of the death rate to about 10% in skilled hands.¹ The method consists essentially of free drainage of the pelvis, a half sitting posture, and frequent and copious rectal saline infusions. It would be impossible of course to carry out these measures except when a halt of some days was expected, still there are occasions when they might be applicable.

In most cases first field dressings had been applied by medical officers or hospital assistants near the firing line, but where no skilled assistance was available, the dressing was either omitted or applied in such a way as to be useless, not infrequently it was applied over the clothes. This would not happen if medical officers realized the importance of teaching not only stretcher bearers but the whole regiment the proper use of the field dressing. In conclusion we must thank the many medical officers whom we asked for details of the after history of our cases for the full replies with which they have so courteously responded.

BITES OF THE ECHIS CARINATA

By W E MONCRIEFF,

MAJOR, I M S

In response to the letter of Lieut C A Owen, FRCS, I send the following notes on three

¹ See Med Annual, 1908 "Peritoneum &c"

cases of snake bite In two of the cases the snake was undoubtedly the *Echis Carinata*, in the third case it was almost certainly so —

Case I—This case occurred in Parachinar, Kurram Valley, when I was there in 1896 I no longer have the notes of the case, but I remember the salient features very clearly One morning a Pathan sepoy came to the hospital, saying that about midnight he had been bitten on the foot by a snake There were two distinct marks on the dorsum of the foot, but apparently little or no blood had flowed. I did not incise the part for the following reasons—

1st, about 10 hours had passed since the man was bitten

2nd, there were no serious symptoms

3rd, the only poisonous snake known in the Upper Kurram Valley is the *Echis Carinata*, and I believed then that its bite is never fatal to a healthy adult

There was in Parachinar at the time an officer well known on the frontier as a collector of and authority on snakes Since then I have been informed by Major Lamb that the toxicity of *Echis* venom is considerably greater than that of *Daboia Russellii*, that the bite of the *Echis* is rarely fatal because the amount of venom injected is very small, but that it is fatal sometimes

There is an interesting case of fatal snake bite reported by Captain Hirst, I.M.S., in the *Indian Medical Gazette*, April 1907, in which the snake was probably the *Echis Carinata*

To continue, the patient remained free from symptoms till about 20 hours after he was bitten and then he began to bleed from the gums and his temperature rose to 105°F There was also a feeling of constriction of the throat For several days there was a continuous oozing of dark coloured blood from the mucous membrane of the mouth which was swollen and the temperature remained high The blood remained liquid in the spitting cup

He was, I remember, in great distress for some days and he then made a rapid recovery

I forget if he passed any blood by the bowel, and the details of the treatment adopted have also escaped my memory

The case had its humorous side for the patient when he was in hospital first asked the abovementioned officer to cure him with a snake charm, this request being refused he went to the bazaar and got a barber to scarify the bitten part and lastly he resigned himself to hospital treatment

Case II—This case occurred in Kotah, Rajputana, on 13th September 1903

The man, a syce, was bitten at 8 P.M. I saw him and also the snake that bit him about three minutes later The snake was a particularly large and brilliantly marked *Echis* viper

On the outer border of the man's right foot there were two punctured wounds that had bled a little

I put on a tight tourniquet with a stick and handkerchief below the knee and freely incised the bitten part with a penknife At 8.30 P.M. the man was in the city hospital and had had an injection of Calmette's antivenene, one and a half doses were given as the serum was not fresh

On the way to hospital and for a short time after the patient complained of feeling giddy and drowsy This passed off by 9 P.M. and all he then complained of was the pain caused by the tourniquet

After applying a rubber tourniquet above the knee I loosened the handkerchief somewhat

Thereafter there were no constitutional symptoms The wound bled freely at first, it had stopped bleeding

by 8.30 P.M., but during the night it began to ooze and continued to do so till the following evening The blood was dark coloured and remained liquid I saw the patient the following morning before leaving Kotah The tourniquet had been removed early in the morning, the wound was oozing, the leg was swollen and painful

Rai Sahib Shih Ditta, the senior hospital assistant, had an anxious time with the case as for some days there was a danger of gangrene The man was in poor health and the person very unhealthy He made a slow but perfect recovery

There was no bleeding from any other part of the body Thanks to Major Lamb's researches, we now know that Cobia antivenene is inert in viper bite In this case then the antivenene had no effect What is the effect of putting a tourniquet on the bitten limb? I am informed by Major Lamb "that Martin of Melbourne has shown experimentally that ligature does delay death in cases of snake bite It never prevents the fatal result only delays death, an important gain if serum treatment is to be applied"

Till I was told this I used to think that in the case just recorded the tourniquet and the free incision of the bitten part had limited the effect of the poison to the limb below the tourniquet

Case III—Duffadar C.S., age 41, 42nd Deoli Regiment, came to the regimental hospital at 9 P.M. on 20th August 1900, stated that he had been bitten by a snake on the left foot The snake had been killed immediately after the man was bitten It was brought to hospital the next morning and proved to be an *Echis* viper

There were two distinct fang marks on the dorsum of the left foot The duffadar reached hospital about 15 minutes after he was bitten A string had been tied tightly round the leg The hospital assistant applied wet cupping, rubbed crystals of potassium permanganate into the punctures and then applied a warm permanganate dressing No bad symptoms appeared till the next day when, seventeen hours after the bite was inflicted, the patient began to bleed from the mouth and felt some constriction about the throat The foot and leg had become swollen

Calmette's antivenene 10 c.c. was injected into the flanks and pill plumbic opio administered in five grain doses

On the 22nd the bleeding continued but the constriction in the throat had disappeared The leg was swollen and painful Extract Ergot Liquid in 30 every four hours was commenced

On the 23rd there was abdominal pain he passed two free motions, and in the second motion there was a little blood Bleeding from the mouth continued but stopped during the night Swelling subsiding Ergot continued till the 25th, patient was discharged to duty on the 29th August

This case occurred when Lieut Col R. Macwatt, I.M.S., was in medical charge at Deoli and with his approval I have copied the notes from the case book

Other cases of viper bite are reported in the *Indian Medical Gazette*, April 1907, November 1907 and February 1908, and Major Lamb's researches on the specificity of antivenomous sera and on other points connected with snake venoms are contained in various numbers of the scientific memoirs by officers of the Medical and Sanitary Departments of the Government of India, a list of which can be obtained from any of the leading booksellers *

* See also *Poisonous Terrestrial Snakes of our British Indian Dominion*, by Major F. Wall, I.M.S. 2nd Edition, Bombay Natural History Society Price Rs 2, the best book we know on Snakes and how to recognise them—Ed, I.M.G.

A Mirror of Hospital Practice

A YEAR'S ABDOMINAL SURGERY

By W J WANLESS, M D,

In the Presbyterian Mission Hospital, Miraj

DURING the year 1908 there were performed by the writer in the Miraj Mission Hospital 136 abdominal operations classified as follows —

	Number cases	Cured	Improved	Unimproved	Died
I — Operations upon the alimentary tract and peritoneum —					
Gastroenterostomy for chronic ulcer of the stomach and duodenum and effects	47	45			2
Gastroenterostomy for atrophic gastritis	1			1	
Gastroenterostomy for cancer of the stomach	4		2		2
Gastrotomy for cancer of the gullet	1				1
Appendicectomy for appendicitis	6	6			
Laparotomy for appendicial abscess	1			1	
Resection of bowel for Tuberculoma	1	1			
Enterocanastomosis for chronic intestinal obstruction	1	1			
Enterotomy for acute intestinal obstruction	1	1			
Enterostomy for ileus	2	1	1		
Laparotomy for chronic obstruction from intestinal adhesions, etc	3	1	2		
Omentopexy (Narath Talma) for cirrhosis of Liver	8		4	1	
Laparotomy for tubercular peritonitis	3		2	1	
Exploratory Laparotomy	4			4	
Closure ventral hernia	1	1			
Total	84	57	11	11	5
II — Gynecological operations —					
Ovariectomy for ovarian cyst	21	21			
Resection of cystic ovaries	3	3			
Suspension of uterus for retroversion and resection of cystic ovaries	6	6			
Salpingo oophorectomy for diseased tubes and ovaries	2	1			1
Simple suspension for retroversion	3	3			
Ventriofixation and amputation of cervix and repair of vaginal outlet for Prolapsed (at one sitting)	4	4			
Abdominal Hysterectomy for uterine tumors etc	11	10			1
Vaginal Hysterectomy for cancer of uterus	1	1			
Myomectomy for myoma	1	1			
Total	52	50			2

Increasing number of patients suffering from chronic gastric and duodenal ulcer continue to apply for surgical treatment in the Miraj Mission Hospital, and coming as they do, many

of them from districts far south, east and north of Miraj, the conviction is growing that the statement not long since made by an eminent American clinician, Turck, to the effect that gastric ulcer in rice-eating countries is rare, is without foundation in fact. This conviction is strengthened by the large number of cases of dispensary patients seen by the writer with symptoms of gastric ulcer in mild or moderately severe form, cases in which the symptoms are not sufficiently pronounced to warrant the recommendation of operation but which in the writer's belief are without doubt cases of ulcer. It is furthermore his belief that a very considerable percentage of cases diagnosed in Government and other dispensaries by medical subordinates as "dyspepsia" are really cases of gastric ulcer. This statement is borne out by the declaration of many patients themselves who having attended several dispensaries apply to us for treatment and demanding an immediate operation for their relief.

The most prominent symptoms we find in these conditions are (1) Epigastric gas pain coming on immediately after meals (gastric) or one to several hours after meals (duodenal). (2) Vomiting, involuntary or induced. Food taken the previous day frequently returned in morning vomit or in lavage water. (3) Visible gastric peristalsis. (4) Slow but steady loss of weight in the majority of cases. (5) Constipation present in 95 per cent of cases. (6) Persistence of above symptoms. (7) Hematemesis, in the writer's experience, occurs in only 25 per cent of the cases and seldom amounts to more than a few drachms of blood at a time and then is often not repeated. It is therefore not a necessary symptom. Melena is still much more infrequent. Gastric analysis except where it reveals the complete absence of HCl and the presence of free blood is of no very great practical value in determining the actual pathologic condition in these cases at least and as far as surgery is concerned. The use of the stomach tube is a much more dependable method of diagnosis. The Active Cause of gastric ulcer the writer believes to be chiefly large infrequent meals of coarse, poorly cooked food and the excessive use of hot curry and raw capsicum. In our most recent experience gastric and duodenal ulcers occur in about the same proportion of cases though both are comparatively infrequent in females as compared with men.

Of the 47 cases of chronic ulcer of stomach and duodenum operated upon by the writer during 1908, 24 presented demonstrable indurated ulcer of the stomach of which 15 were accompanied by pyloric stenosis. There were 21 cases of duodenal ulcer. Two presented evidence of ulceration in both stomach and duodenum.

There was one case of atrophic gastritis operated upon and four cases of cancer. In the first group Posterior gastroenterostomy without a loop (Moynihan Mayo method) was done in

twenty-two, and anterior gastroenterostomy with a Murphy button and 18 inch loop in two cases. In this group there were two deaths. One in a case of pyloric stenosis in a patient 20 years of age and evidently the result of the use of salt solution given by the rectum. 40 ounces were given after operation and 40 ounces six hours later. The second enema was followed by delirium and coma with a high tension pulse. The coma subsided but fever and symptoms of toxic nephritis developed from which the patient died on the fourth day. The urine prior to operation was normal.

The other death was a patient aged 21 who had a cough without positive physical signs of tuberculosis but whose general condition and rapid wasting suggested this condition. He complained of agonizing gastric pain and presented signs of stenosis which was demonstrated at operation. As his general condition was poor, an anterior operation was performed and completed in 25 minutes, he reacted from the operation but died of exhaustion the following day. The remaining twenty cases were discharged "cured", that is to say, they were entirely relieved of their symptoms and the majority left the hospital before the end of the third week.

The posterior operation was done in 21 cases of duodenal ulcer and in two of gastric and duodenal without mortality, all of these patients declaring themselves relieved of their symptoms were discharged as symptomatically cured.

There was one case, a boy of 18, in which analysis of the gastric contents showed absence of HCl. Medical treatment was instituted but without result. The gastric distress was so pronounced that at the urgent request of the patient the abdomen was opened, but direct examination of the stomach revealed no visible abnormality other than some apparent thickening of the pylorus. A posterior operation was done on the basis of pyloric spasm. Relief was obtained for a couple of weeks following the operation, but when the former symptoms returned and which nothing seemed to relieve, he left the hospital unimproved. The operation had been better left undone.

In the benign group of stomach cases there were two deaths in 45 cases. One in a practically moribund patient, and the other death not due to the operation *per se*, but which can, I think, be set down to an accidental cause.

In the cancer group there were four palliative operations, two anterior and two posterior. In one case with advanced disease and pronounced cachexia in which a Murphy button was used. Union between the serous surfaces failed for lack of vitality and death resulted from peritonitis. Another died of exhaustion on the 5th day. The remaining two in which an anterior and posterior operation respectively was done, recovered. In one of these cases there was a mass involving the pylorus of doubtful

character. He was detained in the hospital for 56 days and in the meanwhile gained somewhat in flesh. He declared himself relieved of his symptoms. In the other case, a female of 40, a very hard contracted mass involving gall bladder, liver and duodenum was discovered. Symptoms of stasis had existed for six months. There was no jaundice and no biliary colic. The general health was good. Complete relief of symptoms followed operation. This case is recorded as cancer although its actual pathology is doubtful.

In the intestinal group there were seven cases of appendicitis, six of which were in natives. Two of this group are of interest. In one with ulcerative appendicitis and adhesions requiring tedious dissection. Ileus followed and required enterostomy for its relief. Recovery was tedious, a subsequent operation being required for the closure of the fistula. In the other a large appendiceal abscess was opened and drained without removal of the appendix, the adhesions were left undisturbed. A week later another large abscess pointed in the hypogastrium and was likewise opened and drained. Fecal fistula followed. The patient is still in the hospital and has hectic fever, cough and tubercle bacilli in his sputum. The appendicitis was probably originally tubercular.

In a third case there was a moveable kidney which was anchored at the same sitting.

In one case of tuberculoma of the ileum and caecum 8 inches of bowel was resected, the ends closed and lateral anastomosis made with a Murphy button. The button was passed after two months. Seen several months after operation the patient was in excellent health and had gained greatly in flesh.

In a case of acute intestinal obstruction, the case of the obstruction was found to be a nest of round worms, 231 were removed through an incision in the ileum. There was evidence of a previous volvulus evidently from the weight of the worms. The twist had spontaneously reduced itself. The opening in the bowel wall was closed by a double row of Lembert sutures and the abdomen sutured without drainage. Recovery was uneventful.

Another very interesting case of chronic intestinal obstruction proved to be the result of a hernia of the bowel into the lesser peritoneal cavity. The case on opening the abdomen was puzzling. The presenting parts resembled somewhat an hour glass stomach. On lifting up the colon, however, it was found that a loop of jejunum (3 feet) had slipped through an opening in the transverse mesocolon alongside of the mesenteric vessels. The proximal loop was distended to a diameter of four inches. On reducing the bowel the portion engaged in mesenteric opening was found constricted to the size of one index finger and the wall for an inch or more, thick and fibrous. The mesenteric opening was sutured.

and the limbs of the bowel proximal and distal to the constriction united by a lateral suture anastomosis. Recovery was complete and uneventful.

There were three operations for intestinal adhesions, one following a hysterectomy and another an appendicitis operation. The latter was operated on in this hospital two years previously when universal adhesions were found. Recovery then was prompt. About six months later constipation developed and continued to increase. On opening the abdomen again it was found that about six inches of bowel proximal to the cæcum was constricted by adhesion to adjacent bowel and mesentery. It was readily liberated and ballooned out at once. The raw surface was partly covered by omentum. Relief followed. Later report evidences partial reforming of the adhesions.

There were two exploratory operations. In two inoperable cancer of the bowel was discovered and the abdomen closed. In another case with symptoms of gastric ulcer who had previously had his kidney explored for stone without result but which was followed by relief of his renal colic, was explored. No evidence of ulcer was found, the pylorus was open. The abdomen was closed. The patient's symptoms continued. This patient was evidently a neurosthenic.

A case of abdominal enlargement with dilated veins in a child of eight in which a provisional diagnosis of tuberculosis was made proved to be a diffuse sarcoma of the peritoneum. Tumor masses involved chiefly the spleen and left ovary with smaller vascular nodules in the mesentery and bowel. A limited exploration only could be made owing to the very weak condition of the patient. A piece of tissue was removed from the ovarian mass which showed round celled sarcoma.

Laparotomy for tubercular peritonitis three cases, two were opened and irrigated with salt solution and closed without drainage. One was considerably benefited, the other unimproved. The third was not irrigated. There was temporary relief only.

Narath's Operation. This operation (which we have termed "omentopexy") is usually referred to as Talma's. Priority in the operation, however, properly belongs to Narath. During 43 cases of cirrhosis of the liver with ascites were admitted, of this number eight were subjected to operation. Three were done under cocaine and five under ether anesthesia. All recovered from the operation. In those done under cocaine the result of the operation was less decided than in those done under general anesthesia, probably for the reason that a more thorough operation was performed in the latter. All of the cocaine cases required retapping while in the hospital also one of those done under a general anesthetic. In this last mentioned the spleen was also enlarged. Turpentine abscess was produced in

this case without result. Four of the cases were considerably benefited, the urine doubling or tripling in quantity. The average stay in the hospital was 45 days. One patient remained 100 days and in this the improvement was not permanent. All of the eight patients required purgatives after operation, while still in the hospital. The operation performed consisted of a three to four inch incision in the median line, above the umbilicus, the fluid syphoned off and the surface of liver and diaphragm scrubbed with gauze. A pocket was then made on each side of the incision between the skin and muscle sheath into which the omentum was drawn and stitched by a loose mattress stitch of catgut tied on the skin. A similar pocket was made below the lower angle of the wound and the omentum similarly fastened. The peritoneum and fascia were sutured over the upper half of the protruding omentum, and the skin closed over all, the operation in each case taking ten to fifteen minutes. The scrubbing of the surface of the liver and diaphragm I think has little effect since in most cases fluid reaccumulates and forces these surfaces apart. In several cases we observed that the surfaces were not in contact even after the removal of the fluid owing to shrinkage of the liver.

On the whole, our estimate of the operation is that it confers considerable benefit in about fifty per cent of the cases, but in no cases is there a cure, and probably in most cases the relief conferred by the operation is not permanent.

For ventral hernia there was one operation, the hernia followed an appendicitis operation which had been drained. There was a large bunch of firmly adherent omentum in the hernia opening which was ligated level with the peritoneum and a separate imbricating suture of the fascial layer performed. A perfect result was secured and the patient an active athlete reported after six months abdomen as strong as ever.

II Gynecological Operations Ovaries. Ovarian cysts. There were 21 ovariectomies, 14 of these were unilocular cysts, the largest of which weighed 40 lbs. Two of this group were bilateral. In one the pedicle was twisted and the cyst gangrenous. One with extensive adhesions was associated with prolapse of the uterus which was simply replaced after operation. The prolapsus did not recur while the patient was in the hospital.

Three of these cysts were multilocular, the largest weighing 18 lbs. One of them was "parasitic." There were two dermoids, one of which was classified as migrating, and one had a twisted pedicle. There was one semi-solid growth which proved to be a myxoma and another in which a diagnosis of ovarian cyst had been made proved to be an adenocarcinoma of the ovary weighing 8 lbs.

Three of these tumors demand special mention

(1) A parasitic ovarian cyst which was firmly adherent to or involving entire mesocolon, rectum broad ligaments, uterus, pelvic wall, omentum and anterior parietal peritoneum. The transverse colon was dissected out of the growth, a part of the wall of the tumour being left on the bowel. So also the rectum. The rectum was accidentally opened and immediately closed.

The growth was carefully dissected off all the other structures. A large Miekulicz pack and extensive drainage was necessary owing to the large raw surfaces left uncovered by the peritoneum. The operation occupied one hour and 40 minutes and shock was profound though the loss of blood was not excessive. A faecal fistula developed which retarded convalescence. The patient left the hospital in a fair state of health, the fistula having closed she had no pain and was steadily gaining weight.

(2) Patient, 50 years of age, menopause at 45. Examination showed a firm nodular growth, the size of a large coconut which had existed for one year. It was immovably attached to the anterior abdominal wall at and below the umbilicus and projecting to the left. On cutting down on the growth it was found to have a bony capsule with an opening communicating with the subcutaneous structures. The contents were sebum and hair. A long slender pedicle connected the tumour with the left broad ligament. A subcutaneous elliptical incision circumscribed the tumour which was removed without much difficulty. It had partly worked its way through the abdominal wall to which also it was firmly adherent. The tumour weighed 1 lb and was evidently a migrating dermoid.

(3) This was a case of bilateral ovarian cyst, unilocular on one side and multilocular on the other. The largest right side unilocular containing 10 quarts of fluid. One of the left side cysts filled and blocked the pelvis requiring extensive separation of adhesions. Miekulicz drain was put in. The case was complicated by a ventral hernia which was circumscribed by the opening incision and sutured after the method of Mayo. Recovery was uneventful. All in this group were discharged "cured".

Simple cystic disease—There were three operations: one bilateral resection, one unilateral oophorectomy, one unilateral oophorectomy supplemented by curettage. These cases require no comment save that in such patients we prefer resection to excision in young subjects for obvious reasons.

Of cystic disease with Retroversion six operations as follows—Bilateral Salpingo-oophorectomy with suture of stumps and round ligaments to support the uterus, one, bilateral oophorectomy with attachment of round ligaments to sheath of recti muscles (Gillam), two, bilateral resection and Gillam operation supplemented by curettage, one, unilateral oophorectomy and Gillam operation, one. Salpingo-oopho-

rectomy for tubercular peritonitis with focus in the right ovary, one. In this case a gauze and rubber drain were placed in the pelvis and flank respectively and removed on the fifth day. Recovery was satisfactory and there was no return of the pre-existing peritoneal fluid.

Tubes—Two operations: Salpingo-oophorectomy on one side and resection of ovary on the other for pyosalpinx and cystic ovaries, unilateral Salpingo-oophorectomy for hemato-salpinx, one. There was one death in the above group from ileus from which an enterostomy was done with relief of the ileus. Death resulted from toxic nephritis.

Uterus—Displacement six operations. For Retroversion Simple round ligament suspension (Gillam), one, ditto with colpoperineorrhaphy at same setting, one, for Prolapsed uterus, vaginal hysterectomy, one, amputation of cervix perineorrhaphy and ventrofixation, at same setting, two, Colpoperineorrhaphy and ventrofixation, one. All of this group were discharged cured.

Abdominal hysterectomy 11 operations. For fibro myoma, eight, for tubercular disease of uterus and appendages, one, for broad right ligament dermoid with cystic disease of left appendage, one, for bilateral pyosalpinx with abscess of uterus, etc. one. To these may be added vaginal hysterectomy for cancer of the uterus, one. Myomectomy for multiple fibroid tumours of the uterus, one. All in this group were discharged cured with one exception, *viz.*, a case of fibromyoma in which hysterectomy was done. Infection from the vagina took place and the *post-mortem* showed multiple abscesses in the left kidney.

In this gynaecological group of 52 cases there were two deaths. For the entire series of 136 abdominal operations including a vaginal hysterectomy there were seven deaths, 5.34 per cent mortality.

AN OUTBREAK OF MUMPS

By: RADUB KRISTO SEN,

Asst. Surgeon (retired)

THIS paper relates to an outbreak of mumps that occurred in the family of an Indian gentleman residing in a healthy part of Contai. All his children were affected, one after another, and suffered mildly, with the exception of two of his sons and a grown up daughter, in whom the disease ran a protracted course, and developed symptoms which are not observed in an ordinary run of cases. The details of the three cases are given below—

Case I—T. D. Paulit, male, Hindu, aged about 16 years, student, who had been out of sorts for two or three days, was taken ill with fever and swelling of the left parotid gland on the 16th May, 1906. On the following day the temperature rose to 102.2° and the right parotid gland was affected. Since the morning of the 18th

May he was free from fever for four days, on the 22nd it returned with pain in the throat and a creeping sensation in both ears. On an examination of the throat, intense congestion and swelling of both tonsils and pharynx were detected. On the morning of the 23rd the temperature was 102°F, during the day he had several chills alternating with perspiration, and felt dull aching pains in the back and limbs. In the evening the temperature was 104° when he complained of a throbbing pain and giddiness in the head, at midnight he became drowsy and delirious, and remained in that condition till the morning of the 24th when the temperature came down to 102°F. Careful examinations failed to detect any mischief in the lungs, heart, liver and spleen, but succeeded in detecting pain and swelling of the submaxillary and sublingual gland and a little tenderness over the right kidney. In the evening the bowels moved freely, the evacuations being rather of a pale colour. At night he was troubled with an ill-defined pain in the epigastrium, and vomiting and a feeling of constriction in the lower part of the chest and upper part of the abdomen. Deep pressure elicited pain and tenderness over the pancreas and duodenum, which persisted with moderate severity for three days, and then gradually subsided with the fall of temperature. On the evening of the 28th May, when the temperature again became high, it was found that his right testicle was affected, it was hard, painful, and swollen without any effusion in the tunica vaginalis. After a duration of four days, these symptoms subsided, but were followed by the appearance of the identical symptoms in the left testicle in a much milder form, which did not last long.

Case II—Harnath, male, Hindu, aged about 9 years, was attacked with fever and swelling of both parotid glands on the 20th June 1906, the temperature was 102°F, which remained persistent for about 36 hours, on the morning of the 22nd June, it went down to 100.4°F, the child could no longer be kept in bed, he got up and played about the house and remained apparently well, but for the swelling of the glands for four days. On the morning of the 26th June, the fever returned with pain and swelling of the submaxillary and sublingual glands. During the day he had several ague-like fits, and vomited several times. At midnight when the temperature ran up to 104°F, he commenced to suffer from twitchings of the muscles of the face and extremities, and became delirious. On the following day, the temperature fell to 102°F with the disappearance of the muscular twitchings and delirium, in the evening, it again rose to 103°F when the child was troubled with a severe pain in the head (of a neuralgic character), the intensity of which made him roll in bed and shriek with agony. In spite of all treatment, the pain

continued without abatement till the next morning when relief followed a free flow of saliva which continued with profuseness for nearly 24 hours.

Case III—S M, Hindu, female, aged about 18 years, who had been in an advanced state of pregnancy and nursed the sick children of the family, including the above two cases, was attacked about three weeks after her removal from the town, and two weeks after confinement. Besides the fever and swelling of the parotid glands she was troubled for about a week with a tensive pain and swelling of labia which disappeared as soon as a free discharge from the parts was established, sanguous lochial discharge continued to flow for more than six weeks.

Remarks—Idiopathic parotitis is recognised to be a contagious as well as an infectious disease. Like small-pox and whooping cough it appears in an epidemic form and seldom attacks the same individual more than once. There are several other facts which seem to suggest that it is dependent on the agency of a micro-organism, the nature of which has not yet been determined by bacteriological researches. This germ first infects the buccal mucous membrane, and does not produce specific symptoms until it enters the salivary glands through their ducts when it finds facility for growth and multiplication, and generates a toxine which pervades the whole system.

It not only affects the salivary glands, the ducts of which open into the cavity of the mouth, but also wanders to the lachrymal glands through the continuity of the nasopharyngeal and conjunctival mucous membranes. The follicles of the tonsils, the pharyngeal glands, the crustachean tubes, and even the pancreas and duodenal glands do not seem to escape its invasion.

The degree of severity of the symptoms produced by this germ varies with the quantity of poison generated without any reference to the number of glands affected at the same time. The presence of a large quantity of the poison in the system produces ups and downs of temperature, perspiration, prostration, vomiting, delirium, and other grave symptoms of systemic infection. In most cases, these symptoms subside within 48 hours, but they vary in severity and duration in those cases in which the baleful influence of the poison becomes manifest on the distant organs by a process called *metastosis*. The organs which have a special elective affinity for it, and are chiefly affected, are the ovaries, uterus, and breasts in female, and testes in male, which sometimes undergo atrophic changes. The brain and its membranes are also said to be affected, and sometime so severely, as to cause death. This result cannot, however, be frequent, since physicians with unusual experience, such as Sir Thomas Watson, Niemeyer, and West have never met with it.

THE OCCURRENCE OF ACCESSORY LOBULES OF THE SPIGELIAN LOBE OF THE LIVER

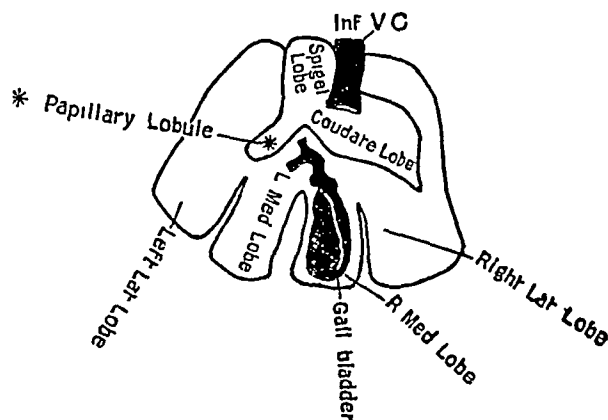
By V E H LINDESAY, M B,

MAJOR, I M S,

Civil Surgeon, Durbhanga

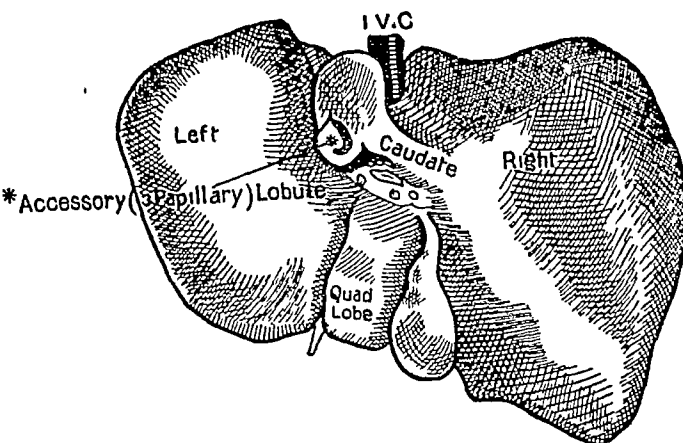
In the *Indian Medical Gazette* for May 1904, I reported a case of accessory lobule of the liver, and on two occasions again within the last two months I have come across the same abnormality while performing autopsies upon the bodies of native males in Bengal.

In the three cases which have come thus under my observation the condition has been practically identical, although there are minor differences in the contour of the lobule.



Thus, in my first case the accessory lobule consisted of a small pedunculated freely movable pyriform appendix of hepatic tissue, $\frac{7}{8}$ in long, springing from the left extremity of the spigelian lobe close to the transverse fissure, and overlying the ductus venosus, as shown in the illustration produced in Vol XXXIX, No 5, *Indian Medical Gazette*.

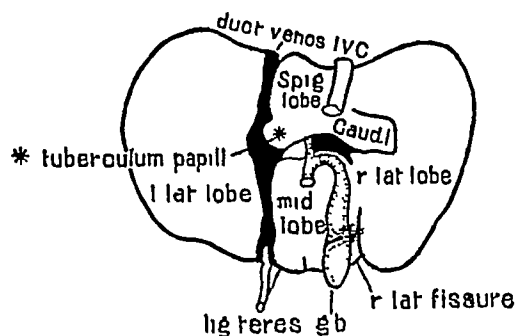
In the second case, observed in the body of an adult male on the 16th October last, the lobule was sessile, and formed a small bulbous excrescence, $\frac{3}{4}$ in long, in the same situation.



In the third case, which occurred in the body of a healthy young Bihari, aged about 19 years, who had been accidentally killed by falling

from a moving railway carriage on the 2nd November last, the abnormality took the form of an uniform process arising in a corresponding situation, with the point of the hook turned away from the transverse fissure backwards in the direction of the posterior aspect of the spigelian lobe, and lying mainly in the groove for the ductus venosus.

When I first came across this peculiarity it seemed an inexplicable freak of nature, but I have in the interval enjoyed the benefit of instruction in recent morphological work by Mr Parsons of St Thomas's Hospital, and Prof Peter Thompson of King's College, and in the light of their teaching considerable interest appears to me to be attached to this little lobule, which I take to be the representative of the "papillary lobule" or "tuberculum papillare" sometimes traceable in European livers as a small swelling on the spigelian lobe at the left extremity of the transverse fissure.



The human liver is described as a development from a generalised mammalian type, composed of five lobes, viz, a *right lateral*, *right median*, *left median*, *left lateral*, and a *dorsal lobe* (developed round the inferior vena cava). This dorsal lobe is bifid where it bounds the transverse fissure dorsally, its left corner forming the *papillary lobule*, and its right corner the *caudate lobe*. The main part of the dorsal lobe constitutes the *spigelian lobe* of man. If my surmise is correct, the little outgrowth which forms the subject of this article is no abnormal development, but the persistent relic of the primitive type of the papillary lobule, as indicated in the rough diagram (Fig 1).

In man, the right and median lobes fuse, but traces of the cleft between the right lateral and median lobes (the "right lateral fissure") are often persistent in the newborn infant.

Similarly the caudate lobe, which in many animals is large and conspicuous, becomes almost lost as a separate entity in the human viscus, and the papillary lobule likewise disappears in most cases, except for the small tubercle which sometimes indicates its situation mentioned above.

The morphological points referred to are shown in the accompanying figures (Figs 2 & 3).

Indian Medical Gazette.

MARCH, 1909

THE SICKNESS IN THE RUSSO JAPANESE WAR

SOME years ago, at the conclusion of the Russo-Japanese war, we were treated to heroics by an American army surgeon as to the "real" triumph of our brave allies the Japanese. We were told in "high falutin" language that the gown of the professor was yielded to by the sword of the soldier, that microscopes were more in evidence than magazine rifles, etc., etc.

We at the time protested against such sorry stuff being put forward as facts, and in more than one article we pointed out that the medical results of the campaign on the Japanese side were no better than on the Russian, and no side had very much to boast of when compared with similar campaigns in other times and countries. The truth is apparently now coming out, and we learn from an article in the *Boston Medical and Surgical Journal*, that Major C. E. Woodruff, a well-known Army Medical Officer of the United States, has stated that the generally accepted views spread abroad by Dr. Seaman's enthusiasm are "entirely without foundation in fact."

The Japanese Director-General has recently stated that 236,223 Japanese soldiers were sick enough to need to go to hospital, and this excludes countless trivial cases treated as what we would call out-patients. We quote the following notes from our contemporary above quoted—

"As the trivial cases far outnumber the typhoids and pneumonias, it can readily be seen that the report of 236,223 serious cases, 27,158 of them infectious, shows an enormous amount of sickness, even among the home troops there were 97,850 serious cases admitted to hospital. Moreover, it was stated that one fourth were beriberi, a preventable infection, which bears the same relation to the Japanese as typhoid does to our soldiers. Major Woodruff goes on to say that the number of Japanese deaths by disease has never been divulged, and that all the amazing discussions on the subject are based on assumptions. We can only estimate the number. It is said that there were 47,387 killed in battle, and that of 173,425 wounded, only 11,500 died of their wounds—a total of 58,887 violent deaths. Then it is stated that the deaths by disease were 37% of this number, 21,788, or 1,037 per month of hostilities. Our medical military attaché reports that the percentage was really 46, not 37, which would bring the monthly deaths to 1,290, and we do not know whether it includes the deaths at the home camps. We can also well doubt

that only 11,500 died of wounds, for these cases generally approximate the number killed outright, and, therefore, the monthly death roll will be much larger than 1,290. Of the 274,717 men in the American army in 1898, 2,565 died of disease during the five months of hostilities, or 513 per month, which is probably not far from the Japanese rate. The figures show what every one knows, that our camps were dreadful, but they also show that a certain amount of disease is inevitable in war, as camps are huge cities without protected water supplies or sewage. It has been stated seriously that as our deaths by disease were 8 (not 14) times those by bullets, and the Japanese deaths by disease were only one third those by bullets, therefore we had proportionately 24 times the death rate they had. It does not speak well for the intelligence of American readers that scarcely one realized that men are not killed by bullets unless they are shot at. In our Spanish War less than 11% of the men ever saw a battle, so that it is no wonder that the deaths by wounds were only one-eighth those by disease. In the Manchurian campaign, according to Surgeon General Suzuki, there were 21 great battles and 50 smaller engagements. It may be estimated that on an average each soldier had ten, perhaps twenty opportunities to be shot. Moreover, it was one of the bloodiest wars of modern times, for in their twenty-one months they had 47,387 killed outright, while in our Civil War of four years, with twice as many men engaged, there were 44,238. As far as we know, the percentage of Japanese deaths by wounds was higher than in any modern war, and that changed the relative proportion of deaths by wounds and disease. If there had been as good sanitation as claimed, the number of casualties would be much more than three times the deaths by disease. On the contrary, our military attachés reported that there was marked neglect of even the commonest laws of hygiene. Things were done which we would not tolerate, and the number of typhoids and dysenteries was deplorable. The beriberi was a disgrace, for the navy had eliminated the disease, but the army surgeons refused to be guided by the naval sanitarians, with the resulting beriberi toll of 25% of all "serious" cases. Some say that it was 50%, and that 16% of the army had it. At that rate we would have had 40,000 cases of typhoid in 1898, and twice as many deaths as really occurred. In view of the fact that much of the Spanish War sickness was directly traceable to tropical climates, and the further facts that the Japanese campaigned in a northern climate to which they suited, and that troops in campaigns are always healthier than those in camp, their record is deplorably bad, for if they had had good sanitation, they should have had only one tenth the deaths they have acknowledged."

Current Topics.

LT-COLONEL W. J. BUCHANAN, M.D., I.M.S., Editor of the *Indian Medical Gazette*, expects to go home on eleven months' combined leave from the middle of March. During his absence Capt. D. McCay, M.B., I.M.S., Professor of Physiology, Medical College, Calcutta, will act as

Editor The acting Editor's address will be, as before, c/o Messrs Thacker, Spink & Co, 5, Government Place, Calcutta

THE USE OF ATOXYL

THE first bulletin of the Sleeping Sickness Bureau (Burlington House, W) has been issued (dated October 1908) It is entirely taken up with the chemotherapy of trypanosomiasis It is of great importance as it shows the risks of the fashionable use of atoxyl Two principles are laid down—(1) The employment of atoxyl or other trypanocide *by itself* is not justifiable (2) The alternation of trypanocidal agents We must ring the changes on the drugs at our disposal

Atoxyl in full therapeutic doses (*e.g.*, 1 gramme) may bring on incurable blindness The report does not agree with Manson's view that atoxyl should be used in small doses for long periods On the contrary, the parasites become immune to the drug and cease to react to it, and this habituation of the parasites must be forestalled by the use of other drugs, *e.g.*, paraformin, antimony, trypan-red, etc

In his quarterly report on the work of the Segregation Camps in Uganda for the medical treatment of sleeping sickness Capt A C H Gray, R A M C, also shows clearly that the hasty view of Koch, that in atoxyl we had a general and permanent cure for this disease, must be abandoned, and it is clear that the combination of mercury with atoxyl has not proved a success Yet in some cases life has been so prolonged as to give hope that a cure has been established This is the case with Lada Singh of the King's African Rifles, a native of India (? Sikh), who is apparently quite well three years after trypanosomes were found in his blood A Mr Zoller is well and at work over two years after the discovery of his being infected A Mr Coutinho is apparently cured after 2½ years, on the other hand, Nairam Singh of the Indian Contingent was found to be infected three years ago, was free for two years and has since been found to be reinfected and suffering from symptoms which may be due to the infection Prof Koch now claims that the trypanosomes disappeared "permanently" in only 20 per cent of his cases Atoxyl seems, however, in spite of its dangers, to be the only drug of any value, and its use certainly seems to result in improvement and in prolongation of life

LITHOLAPAXY v LITHOTOMY

DR MACPHAIL, the enterprising editor of *Medical Missions in India*, has introduced a useful feature in his Journal which he calls "Symposium," an American use of a Greek word which would surprise the ancient Greeks

In the January number he gives the opinions of many leading surgeons on the question Lithotomy v Lithotripsy

Major Henry Smith, of Jullundur, writes that in competent hands lithotripsy stands out alone and is far superior to any cutting operation He thinks that the Edinburgh School is responsible for the vogue of the suprapubic operation He refers to the popular view that lithotomy may be followed by sterility and advises mere English and American general surgeons to avoid litholapaxy, which requires more skill and experience than can be got in Europe or America His remedy is as follows and is characteristic —

"The remedy for the present state of affairs is for the general surgeon in Europe and America to add India to his curriculum,—to come here and get instruction, see it done by competent operators Somehow India is looked on with a jealous eye by those people If the name of India were changed to "Germany," why this country would have crowds of post graduates from Europe and America, to learn how to operate on stone in the bladder as well as on the eye"

Dr W J Wanless, of Miraj, writes that he crushes 70 per cent of his stone cases, and in 25 per cent he does lateral lithotomy and in about 5 per cent the suprapubic operation He is somewhat partial to lateral lithotomy in small boys Perineal lithotomy he reserves for large hard stones in fairly healthy bladders Dr A Neve, F R C S, of Kashmir, prefers litholapaxy in a majority of cases in children and in adults Of his last 46 cases, 41 were crushed, one was suprapubic and 4 perineal litholapaxy Dr W F Adam, of Dehra Ghazi Khan, with an experience of nearly 1,000 stone operations, considers lateral lithotomy to be obsolete We may quote as follows —

Lithotripsy is the ideal operation resulting in a complete cure and leaving no scar or functional debility Along with the extraction for senile cataract I think it the most satisfactory means of relief of suffering which we are commonly called on to exercise in India But perhaps it calls for more practice and manual dexterity than many other operations Considerable damage can be done by an inexperienced surgeon And I think this explains why many European surgeons prefer suprapubic lithotomy Few of them can get the practice we have, and with their familiarity with abdominal surgery they prefer to see what they are doing and use instruments which they thoroughly understand And to a tyro lithotripsy is a tedious and trying operation In India our difficulty with suprapubic lithotomy is not the operation itself but the usual after drainage, which is no trouble in Europe with their trained nursing staff

In adults I seldom find the lithotrite beaten Only this week I crushed a four ounce stone with a No 18 Lithotrite The operation took 45 minutes and the patient, a man of 60, was quite fit afterwards If the lithotrite fails, suprapubic lithotomy is the best alternative For really large stones any operation is equally dangerous Boys undoubtedly stand the perineal operation better than men, but even with them I now find extracting the stone whole practically never necessary A long tedious crushing operation in small children with a small lithotrite should be avoided Whenever I find bad cystitis or the stone difficult to crush by the natural route, I do perineal lithotripsy A small median incision admits a full sized lithotrite and canula by which any stone in boys is easily crushed and washed out And the bladder is drained I do not introduce a finger into the bladder and the sphincter is neither cut nor much dilated Incontinence never follows and in a day or

two when the drainage tube, which I usually put in, is removed, the patient has full control over micturition. This is a great advantage over both the other cutting operations.

In females any stone which cannot be crushed per urethram should be dealt with by the high operation.

He says he has seen just as many cases of recurrence after lithotomy as after litholapaxy.

On the other hand, Dr James Sommerville, of Jodhpur, considers lateral lithotomy the easiest and preferable in most cases and especially in children. He uses the suprapubic operation only for big stones. Dr H T Lechmere Taylor, of Jalalpur Jatan, says that personally he would now never cut for a stone that could be dealt with by crushing, he points to the bugbear of retained fragments.

Dr T V Campbell writes that as he only recently had lithotrites in his hospital, he had to do cutting operations, and he considers the mortality from the suprapubic operation to be overrated. His successor Dr Thomson of the same hospital favours litholapaxy and quotes the following figures—

Lithotomy		Number of Cases	Deaths
Suprapubic	1896-1900	23	2
	1905-1907	35	3
Lateral	1896-1900	8	0
	1905-1907	8	1
Median	—1908	1	0
Vaginal	1896-1900	1	0
	—1908	1	0

Dr A Lankester, of Peshawar, says he crushes in every case in which it is possible to introduce a lithotrite and grasp the stone within its screwing limit.

We may here add in full the note by Dr D F Keegan, FRCS (IMS, ret'd), the pioneer of litholapaxy in children—

D F KEEGAN, FRCS, Indian Medical Service (retired), Innsbruck, Tirol, Austria—

Litholapaxy, as distinguished from its halting prototype the lithotritomy of many "sittings" in vogue in the days which preceded Bigelow's brilliant innovation, is a superior operation to both suprapubic and lateral lithotomy in three important respects, viz, in rate of mortality, in rapidity of cure and in being free from cutting.

It has also an additional though perhaps not a very important advantage, derived from rapidity of cure it reduces the comparative cost of dieting during convalescence.

Mortality—In young boys the three operations, when skilfully performed, can be brought into line, so far as the death rate is concerned, and in these young patients unless stone in the bladder is associated with structural kidney degeneration, the rate of mortality after operation should not exceed 2½ per cent. Indeed, all operations for the cure of stone in boys should have a low rate of mortality. But as a matter of fact the death rate of mortality among boys after lateral lithotomy is less than suprapubic lithotomy.

But when we come to deal with groups of patients at all ages, statistics prove that the death rate of litholapaxy, lateral lithotomy and suprapubic lithotomy averages 4 per cent, 10 per cent, and 16 per cent, respectively.

Rapidity of Cure—The average number of days spent in hospital by boys after litholapaxy is well under a week, and in many cases they are practically well on the third or fourth day after operation. Boys

subjected to lateral lithotomy spend on the average three weeks in hospital and a still longer period if the stone be removed by the suprapubic route. In adults, the protracted stay in hospital after both lateral and suprapubic lithotomy, as contrasted with the short stay after litholapaxy, is known to all surgeons.

Absence of Cutting—It is in this special feature that litholapaxy has the advantage, among patients of all ages, over its two rivals. In boys, although as already mentioned the death rate is higher in suprapubic than in lateral lithotomy, still I think that if a cutting operation is to be done, suprapubic lithotomy is preferable to lateral lithotomy. For there cannot be a doubt that in young boys lateral lithotomy is frequently followed by emasculation, more especially if the stone be large, for in such cases, the ejaculating ducts are almost certain to be cut or torn through. What the percentage of emasculation which follows lateral lithotomy in boys may be, it is hard to determine. Stone in the bladder in early life is in nearly every case a disease of the poor, and "the short and simple annals of the poor" are not easily traced either in Great Britain or in India.

The reason why lithotritomy (Bigelow) is so little practised in England as compared with India is that in England general surgeons and even hospital surgeons are not afforded sufficient opportunities to render themselves practically familiar with the lithotrite. There are not enough cases of stone in the bladder to go round among the surgeons. To render himself practically familiar with the lithotrite, and to learn the art within a moderate span of years, a surgeon must be provided with patients suffering from stone in the bladder in rapid succession and no surgeon need hope to acquire the art of working the lithotrite with dexterity and precision until he has performed between forty and fifty litholapaxies. And even then he has much to learn. In few operations in the whole range of Surgery are constant practice and the personal equation of the operator of greater importance than in litholapaxy. I may give examples. In the July number of the *Indian Medical Gazette* for 1892 I published an analysis of the first 500 litholapaxies performed in the Indore Hospital, Central India, on patients at all ages. Deducting the litholapaxies in boys, there were 286 operations in males between fifteen and ninety years of age with 11 deaths or a death rate of 3.84. But when I came to examine this mortality more closely, I found that 7 out of the 11 deaths occurred among our first 52 litholapaxies leaving a balance of 234 litholapaxies with only 4 deaths.

The death-rate among the first 52 litholapaxies was 13.4 per cent, while it was only 1.7 per cent among the last 234. There was no marked difference in the ages, caste and general health conditions of the patients who constituted the first division of 52 and the second division of 234, and the average weight and composition of calculi removed from both sections of patients did not differ materially. A death rate of 13.4 per cent in 52 litholapaxies was certainly not a very brilliant result, but a death rate of 1.7 per cent in 234 litholapaxies in adult males left little to be desired.

We may glance at Brigade Surgeon Lieutenant Colonel Forbes Keith's experience who in five and a half years' practice in Hyderabad Sind, treated 1,933 cases of stone in the bladder. I find that he performed 676 litholapaxies in adult males with 22 deaths, a rate of mortality of 3.2 per cent—a result highly satisfactory. He, however, lost 16 patients in his first 111 cases, a death rate of 14.4 per cent. In his last 565 operations he lost but 6 patients, a death rate of only 1.06 per cent.

These two examples are, I think, sufficient to explain why it is that surgeons in Great Britain, when called to treat a case of stone in the bladder, prefer to put their trust in the scalpel than in the lithotrite.

* See *Indian Medical Gazette*, August 1901 "Note on Assendelft's work."

P J FREYER'S PROSTATE OPERATION

WE quote the following note by Mr B J Ward on the immediate and remote results of Freyer's suprapubic prostatectomy—(*Med Chronicle*, Dec 1908)

THE author has collected a series of 109 cases of suprapubic prostatectomy for simple enlargement of the prostate which have been performed at St Peter's Hospital, between December 1st, 1900, and December 1905, which includes every case of this nature operated on since Freyer first introduced the operation. Out of these 109 cases there were 22 deaths, a mortality of 20 per cent. During the last year of this period, 44 operations were performed with 5 deaths or a death rate of only 11.4 per cent. During 1907 there were 70 operations with 4 deaths or barely 6 per cent. This great improvement is due to an improved skill in the technique and not to a more rigid selection of cases. The average age of patients operated on was 65 years and in patients of this age, worn out by constant suffering with a septic condition of urine, a death rate of 10 per cent is about the best we can hope for.

Mr Ward gives a very detailed account of these cases in the form of a table which enables one to see at a glance the result in each case, and this article serves to show that the operation is of permanent benefit with no drawbacks beyond the immediate risk to life.

He draws the following conclusions—

1 The mortality of the operation has rapidly decreased and is still decreasing, chiefly owing to improvement in technique.

2 Stricture need not be feared if the operation is properly performed, tearing rather than cutting the urethra.

3 The result of the operation is an almost perfect restoration of function.

4. In only a few cases does the frequency of micturition return to normal after the operation. It is the rule for these patients to pass urine at least once during the night, although otherwise healthy.

5 A variable amount of residual urine is present in 50 per cent of the cases for some time after the operation, but this diminishes until the bladder completely empties itself at the end of the third or fourth year.

6 In a certain number of cases the sexual act is completely unaltered by the operation. In the majority connection may still be enjoyed but without any emission.

7 The control of the urine is perfect after the suprapubic operation, and this depends on the absence of injury to the compressor urethra muscle.

8 If any marked pain or difficulty remains after the operation, it indicates some complication.

9 The patients' verdicts are unanimously in favour of the operation.

A NEURITIS OUTBREAK AMONG BRITISH TROOPS IN INDIA

THE following extract from the Report of the Sanitary Commissioner with the Government of India (for 1907, page 28) gives an account of this strange outbreak which in many respects resembled the beri or arsenic neuritis epidemic in England a few years ago—

"Beri beri caused 37 admissions, of which nineteen were recorded at Poona, six at Kirkee, and three each at Ahmednagar, Karachi and Aden. The correctness of the diagnosis of beri beri was by no means certain in some of the cases at Poona and most of the other stations, at Poona fourteen cases of a similar kind were diagnosed as multiple neuritis (probably alcoholic), at Aden nine, and at Ahmednagar four. At Poona the disease became epidemic during September and October, and it was for this reason chiefly that it was diagnosed

beri beri. A committee was appointed to investigate the cause of the disease in Poona, and in their report it is stated that during 1907 there were 60 cases of multiple neuritis among the men of one regiment. The following are some of the conclusions arrived at by the committee—(1) The disease was multiple neuritis, which, during certain months of the year, assumed an epidemic form. (2) Arsenic as a causative agent could be excluded. (3) With regard to food there was no consumption of rice, no deficiency of nitrogen, and no deprivation of fat. (4) If the disease had not become epidemic, it would most probably have been diagnosed as alcoholic multiple neuritis. (5) All the patients were beer drinkers, and no case occurred among teetotalers. Many of the patients admitted drinking from six to sixteen pints of beer daily, which according to a report from the Director of the Excise Laboratory at Kasauli, corresponds to the consumption of from 6.6 to 17.6 ounces of pure (100 per cent) alcohol daily. (6) The conditions of life which are usually associated with outbreaks of beri beri were absent. (7) The view that the disease was simple alcoholic neuritis appeared to be negatived by the epidemic prevalence of the disease in particular months of a particular year, but possibly some toxin which caused the disease was introduced, or generated by fermentation, in a particular brew of beer. (8) While believing that the disease was not simple alcoholic neuritis, the committee were strongly of opinion that excessive consumption of beer, if not the exciting cause of the outbreak, was undoubtedly the predisposing cause."

IMPURE SODA WATERS

SOMEWHAT over a year ago consternation was created in Paris over a report published which showed that a large number of so-called "table-waters" were bacteriologically impure, more impure in fact than ordinary water from the tap. It appears that in London matters are no better. The Medical Officer of Health for London, Dr W Collingridge, has published recently a report on certain bacteriological examinations of "Soda-waters," made by Dr E Klein who finds that, out of 36 samples, only 27 per cent were pure, and no less than 52 per cent were impure and the rest are vaguely classified as "fairly pure." Inspection of factories showed many opportunities for contamination in the washing of bottles and in their storage.

It may be remembered that some ten years or so ago Mr Hawkin of Agia published some results of his examinations of soda water, but we know of none since. As thirsty India is pre-eminently the land of "soda water" as the aerated waters are usually called, it is very desirable that some of our Laboratories should undertake an examination of the soda waters which are made by all sorts of people, by firms of repute as well and in dark and dingy bazaar houses. The ice we use also in the hot weather needs examination, and as the hot weather is not far distant, it would be worth while to make such examination.

ANointing THE BODY

THE following note (from *Journal A M A*) will interest many of our readers—

The almost forgotten advantages of anointing the body with oil is brought to our notice by the *Dietetic*

and *Hygienic Gazette*, September 1908. The practice of anointing the body with oil goes well back into ancient history, and is still practiced by the natives of Africa, Samoa and the South Sea Islands.

The body should first be bathed with warm or tepid water, dried, and the oil then applied, it should not be applied to the dry, unwashed skin. The oil should, of course be pure and clean should be well rubbed into the skin and any surplus should be removed with a soft towel. Some knowledge of massage is necessary to a successful oil rub, and the rubbing should not be sufficiently vigorous to cause perspiration. The best oil for this purpose is pure olive oil, coconut oil or palm oil, cottonseed oil may be used. Animal fats do not make an ideal oil rub.

In temperate climates it is probable that the main advantages from such anointing is due to the massage, in other words, the circulation of the skin is improved, the muscles are cleansed of excrementitious products by such debris being forced into the lymph circulation, and the blood flow through the muscles is improved. The oil rub has also a good therapeutic use when the skin of the patient is always dry and scaly. Such people probably do not have a normal secretion from the thyroid gland, but whatever internal medication is deemed advisable, the oil rub will add to the improvement of the skin condition.

In tropical countries the oiled skin radiates heat more rapidly than the dry skin when little or no clothing is worn. On the other hand, in cold countries where much clothing is needed, the oiled surface of the body keeps the body warmer. It also seems to be a fact that after hot bathing a patient who catches cold readily has less liability to chilling if an oil rub is given.

Locally, oil rubbing may be used, after hot bathing, for cold feet or cold legs, and the feet of such patients will remain warm longer than without it.

Although it has been stated that oil may be rubbed into the body so as to increase nutrition and that weakly patients, especially infants, will improve, it is still a question if it is not the general toning up of the circulation, the equalization of the circulation, and the prevention of flabbiness of muscles, in other words, the effects of the massage, that are the real cause of the improvement in the general condition.

THE HEARSEY TREATMENT OF BLACKWATER FEVER

We were recently asked for details of what has been called the Hearsey treatment of this formidable complication. We are now able to quote the following from a recent number of *The Hospital* —

Formerly the teaching was that quinine in large doses, champagne, and beef tea were to be administered. Then came a time when quinine was tabooed, and a variety of other remedies were successively recommended in its place. The treatment of blackwater fever became chaotic until, in 1889, definite rules were formulated by Dr H. Hearsey. The treatment recommended by this officer has been attended by such an immense reduction in the mortality of the disease that the name blackwater fever has been robbed of many of its terrors — and thus, from the mental point of view, in a severe case alone, means a great deal in coping with it.

The details of the Hearsey treatment are as follows. The patient is naturally in bed, and all precautions are taken against his getting any chill. As soon as possible after the onset of the illness a sufficient dose of calomel is given by the mouth, a quarter of a gram of morphin is injected hypodermically to allay restlessness and vomiting, the patient is wrapped in blankets, and hot-water bottles are put into the bed.

An hourly dose of a mixture containing half a drachm of liquor hydrargyri perchloridi and ten grains of

sodium bicarbonate to a tablespoonful of water is given for the first twenty four hours, and subsequently every two hours until the urine clears.

No food is given for the first twenty four hours, unless there is a complete absence of vomiting together with a strong inclination on the patient's part for something to eat. The kind of diet which is suitable in most cases consists of (1) Small quantities of milk, with or without soda water, (2) Small quantities of freshly-made chicken broth, (3) Small quantities of white wine whey, (4) *Barley water ad libitum*, the patient being encouraged to drink it. Acid drinks, such as lemonade, champagne, or hock are absolutely prohibited. If towards the latter part of the illness alcohol seems requisite, brandy or whisky is the only form in which it should be exhibited. Beef extracts and essences are also strictly forbidden. N. quinine is allowed. Digitalis may be indicated in some cases.

There are a few minor details in the treatment that remain to be mentioned. Amongst others the value of saline solution in severe cases merits attention. It may be administered by intravenous or intracellular injection, but it serves its purpose equally well if it is given slowly and continuously per rectum. It is well that the saline solution should contain not only sodium chloride but also sodium bicarbonate, the amount of the latter being as much as one or even two drachms per pint. It is of decided benefit in some cases.

Another point, and one upon which too much stress cannot be laid, is the importance of absolute recumbency during the illness and for at least seven days after it. Fatal syncope may result from getting out of bed to go to stool, either during the acute stage or the disease or during the first few days of convalescence.

THE KALA AZAR CASE IN GERMANY

As it is a matter of very considerable interest that the Leishman-Donovan Infection has been shown to exist outside of India, we quote the following report of the case shown in Berlin (*Medical Press*, December 9th, p. 641) —

At the *Gesellschaft*, Sluka showed a young lad, at 9, very emaciated and pale, but having a large abdomen out of all proportion to the other parts of the body, particularly the limbs. Over the umbilicus he measured 59 centimetres, or nearly 30 inches, with veins on the surface distinctly prominent. On palpation both right and left epigastrium were dull and hard from increase of spleen and liver, the former lying 1½ inches below the umbilicus, while the latter extended far below that level. The spleen reached the middle line on the right side with two distinct notches in its margin about the mammary line. The spleen was hard, but smooth on the surface, the liver was also smooth and hard, with round edges, but very tender and painful to the touch. No free fluid could be detected in the abdomen, and no glandular swelling could be observed by deep pressure, while the bowels were normal, and urine containing urobilin, but not in a pathological quantity. The ophthalmoscope revealed nothing abnormal in the fundus.

In the blood examination the red corpuscles numbered 3,000,000, with here and there a few polychromatophiles, but no nucleated cells, and all about the average size, with a colour index of one. The number of white corpuscles averaged 2,000, with a relatively large increase of lymphocytes and large mononuclear leucocytes. The percentage was 47 per cent lymphocytes, 35 per cent neutrophils and polymorphic nuclears, and 18 per cent of large mononuclear cells. The polymorphic nuclear cells were not eosinophilic beyond the average.

The dried blood, coloured according to Giemsa-Romanovsky's method, revealed no malaria plasmodia, but from the history of the boy it was discovered that

he had resided about a year at Tashkend, near the confines of India, with a friend [Near? Ed.—*IMG*]

From the examination and the latter information, it was now perfectly evident the boy was suffering from what Prof Ghon discovered long ago, kala azar, which is usually met with as an epidemic, although sporadic in some quarters. The principal distinguishing features of the disease in the order of their importance are splenomegalia, hepatic enlargement, increasing cachexia, and an irregular temperature, sometimes remitting, at other times intermitting, with great leucopenia. The leucopenia, or poverty of blood, with the increase of mono nuclear cells, are diagnostic features in the hæmætic examination, which, along with the splenomegalia, etc., cannot be mistaken.

Kala azar has been known for thirty or forty years now as an epidemic infesting the provinces of Assam and the Brahmaputra, while it is met with as a sporadic disease in Ceylon, China, Arabia, Algiers, and Crete. According to Roger, the disease is incidental to both sexes alike, but when met with sporadically, the incident is double in the male sex to that of the female. One fourth of the disease is met with in children under 10 years of age, the half, or more correctly 70 per cent, under 20 years of age.

"THE ANTI-OPIMUM PLANT"—The following note from *The Prescriber* (October, Vol II, No 25) is worth attention—

Reports on the use in this country of the "anti opium plant," *Combretum Sundarum*, cannot be said to be entirely of a satisfactory nature. While credit must be given to the accounts of cures which reach us from the East, as well as to those from nearer home there can be little doubt that the drug acts only in conjunction with reduced doses of the narcotic, serving possibly as an astringent, and thus counteracting the bad effects consequent on the withdrawal of opium. That being so, it is hardly to be expected that it will act satisfactorily in the case of a patient given to using morphine hypodermically. A report has just reached us from a subscriber who has tried *Combretum* for this purpose, and has found it wanting. The patient was a gentleman, about forty years of age, who had become addicted to the use of hypodermic injections of morphine. A teaspoonful of liquid extract of *Combretum* was given internally with water at the time of each injection. Our correspondent says—

'The patient was in a home, and careful attention was given to all his requirements, but after trying the remedy for three months no benefit was obtained. I am convinced that the drug is useless for the purpose for which it has claimed attention. A better opportunity for testing its value could not have been found, yet no palliative effect was observed.'

Disappointing though this result undoubtedly is, it is only right that it should be made known. Further investigations may bring to light the real action of *Combretum*, and may show under what conditions its beneficial effect is manifested. Our correspondent adds that he has some of the liquid extract still on his hands, and that he will be glad to let any reader of *The Prescriber* have it for purposes of further experiment. We shall be glad to publish the results.

WE have received No III of the *Memoirs* of the Indian Museum, which contains an exhaustive memoir on the *Oligochæta* of India, by Dr W Michaelsen of Hamburg, the collection having been entrusted to him for examination by Dr N Annandale, the Superintendent of the Indian Museum, and also a long note on the Anatomy of some Aquatic *Oligochæta* from the

Punjab by Major J Stephenson, I M S. Both memoirs are beautifully illustrated.

WE have also received Parts 2, 3 and 4 of Volume II of the *Records of the Indian Museum*, which is a Journal of Indian Zoology. In it we find articles by the following Indian Medical Service officers, viz—on *Cimex rotundatus* by Captain W S Patton, I M S, and on two new species of Eagle-Rays by Captain R E Lloyd, B Sc, I M S. Part IV contains Captain F H Stewart's report on his collection of aquatic animals made in Tibet in 1907.

THESE records are also very well illustrated and the series is sure to be one of high scientific value.

AT a meeting of the *Society of Tropical Medicine*, held in London (October 16th, 1908), Dr A E Horn read an interesting paper on the prevalence of Cerebro-spinal fever in the northern territories of the Gold Coast. It has long been known that cases of the fatal disease have prevailed in West Africa, as it has done in the Soudan and Egypt, but a severe epidemic broke out on the Gold Coast in October 1907, and caused an extremely high mortality. It is worth noting, in view of what is called the Bhagalpur dust theory of the spread of the disease, that it occurs on the Gold Coast only during the Harmattan or dry season, when the Harmattan wind blows steadily and the country becomes extremely dry and dusty, and catarrhal conditions of the air passage become very common.

THE discussion on this paper only served to show the ignorance of the speakers of the literature of this disease of the tropics. A reference to the pages of the *Indian Medical Gazette*, the *Journal of Tropical Medicine*, the *Journal of Hygiene*, or even the *British Medical Journal* would have shown how well known the disease was in India and the immense amount of support given to the dust theory by experience of the disease in India.

WE have received copies of the report on plague at Sydney, 1907, and of an outbreak at Kempsey, Macleay River, N S Wales, in the same year. The Sydney outbreak consisted of only 47 cases and only 16 deaths, fever of the patients were of Chinese origin. The bubonic form was met with in 39 out of 47 cases, the septicæmic in 6 and primary plague pneumonia in 2 cases. The first cases occurred among workmen engaged in altering premises used as restaurants in King Street, where plague-infected rats had been found.

The persistence of plague, that is, its recurrence in mild outbreaks year after year in

Sydney Harbour is attributed by Dr J Ashburton Thompson to the reimportation of infected rats, from foreign or from other infected Australian ports and the danger from coastal steamers, as recently in Liverpool, is shown clearly

A number of very interesting experiments have been made by Dr Millard on the use of such rat poisons as "azoa" and "iatin," which have not been shown capable of producing an epizootic among rats

Dr R J Millard publishes his report on 4 cases of plague which occurred at Kempsey 30 miles from the sea coast and 200 miles north of Sydney, with which city communication is maintained by river steamers. The first case was of a man in a produce store where 6 and 7 days before his attack he had assisted at the removal and destruction of 31 dead rats found beneath the floor, the other cases were in close attendance on the first patient

These reports are very valuable from the fact that the history of each case is so well followed up and so few in number that they can be fully treated

In conclusion, we should call attention to the fact which has not always been remembered that Dr Ashburton Thompson must, in all fairness, be considered one of the very first, not only to support the flea-theory of plague, but to produce valuable epidemiological data in support of his views

THE well-known monthly, *The Ophthalmoscope*, appears in a new and enlarged form from January. The subscription is 20s per annum prepaid. It is a first-class paper and is in every respect an up-to-date review of current ophthalmology

AN extract in the *Journal of Tropical Veterinary Science* (vol III, No 4, page 494) shows that *kala azar* has been recognised in dogs, and it is suggested that the disease may be transferred from dog to man by means of fleas

THE second part of Captain Christopher's and Dr Bentley's report of their special inquiry in the Duars will deal with malaria as a cause of death and sickness in the Duars. A number of new and highly interesting observations have been made

DR SEN writes to a contemporary (*Practical Medicine*, Jan, page 5), that there are several cases of epidemic dropsy in Delhi, but apparently confined to the Bengali community of that city

WE are glad to see our two contemporaries, *The Hospital Assistant* and *The All India Hospital Assistants' Journal*, still flourishing and keeping up their good reputation. All Hospital Assistants should support one or other of these useful magazines

THE Central Research Institute is examining certain samples of *Lathyrus Sativus*, the pulse generally known as *hesari*, or as *teora*, the continued use of which produces the common form of paralysis known as Lathyrism

Reviews

The Rat Problem—By W R BOELTER London John Bale, Sons and Danielson Fcap 4to, one Plate and 75 Illustrations Price 2s 6d

THIS book has been compiled by Mr Boelter in his capacity as Secretary to what is quaintly called the I S D V in London

It is really difficult to treat this book seriously, the scientific side is so hopelessly mixed up with the popular and the pictorial that one hardly knows whether to class it as a scientific work or a child's book on natural history

Mr Boelter is an enthusiastic disciple of Professor Zuschlag of Copenhagen, and determined "to join in the war of extermination preached day in and day out by that arch enemy of the rats"

Zuschlag began his war against rats from the economic side, he calculated that there are as "many rats as human beings" and that "each rat causes a loss by destruction of food and material of at least one farthing a day" We may refer to the book itself for the collection of facts and statements upon which this estimate is based

As regards the rôle played by the rats in the spread of disease so far as we know, he is only incriminated in the case of two diseases, plague and the trichina, but we think the pig and badly cooked trichinous pork much more to blame than the rat. No doubt rats which frequent a slaughter-house will soon become infected with trichinæ

A lot of interesting information is collected in the chapter on the natural enemies of the rat. The enormous fecundity of the rat is shown by a table quoted from Zuschlag. Among the natural enemies are the owl, the weasel, the pine marten, the polecat, the kestrel, ferret, mongoose and other birds and beasts. There is a section on cats which should please the heart of Lieutenant-Colonel Andrew Buchanan, RMS, whose writings might have with advantage been studied by Mr Boelter. Other chapters follow on mineral and vegetable poisons, on rat clubs, rat problems, with extracts from such classical ballads as the "Rat Catcher's Daughter," etc. The appendix is useful, it gives extracts from the Rat Laws of Barbadoes, Antigua, Hongkong, and the Rat Law of Denmark, 1907

In addition to all this, the publishers have risen to the occasion and have bound half the issue of the book in rat-skin!

As we have said above, we think this a good and useful book, spoiled by an attempt to popularise the subject. If it is intended to interest the farmer and the warehouseman in the damage done to the property by rats, well and good, the book is admirably adapted for this purpose. As a contribution to science, it is unsatisfactory. We may note incidentally that the author considers the various viruses on the market as useless "Danzys," "Liverpool," "Ratin," "Raticide," etc.

Operations on the Ear—By B HEINE. Translated and edited from the Second German Edition by W LOMBARD MURPHY, M A, M B, B C (Cantab), F R C S I, etc. London: Messrs Baillière, Tindall & Cox, 1908. Demy 8vo, pp xvi—204. 56 Illustrations. Price 8s 6d net.

THIS is a translation of Heine's work in its second edition and it forms an excellent guide to operations on the ear. It is divided into two parts. The first part deals with operations for suppurative otitis media and the second with operations for the intracranial complications of otitis. The arguments for and against each procedure are fairly given, together with full accounts of the views of Surgeons differing from the author. Special consideration is given to the treatment of acute mastoiditis by Bier's method of passive congestion, and the author sums up against it. Indeed, one of the cases related by Bier himself is held to show how fatal the method can be. Heine concludes 'In any case only an experienced aurist is qualified to work out the subject, and his results alone can be taken as a standard in coming to a decision on the merits of the method.' Under the 'Radical Operation' Zaufal's method and Stache's method are described and Stache's and Kinner's plastic operations for closing in the wound are given. The work is marked throughout by its sound judicial tone and conservative tendencies, both of which qualities render it more than usually valuable. The book is well translated and the publishers have done their part excellently.

Practical Guide to the Diseases of the Throat, Nose and Ear—By WILLIAM LAMB, M B, C M, (Edin), M R C P (Lond), Honorary Surgeon, Birmingham Ear and Throat Hospital. London: Messrs Baillière, Tindall & Cox, 1909. Second Edition, pp 322, Fig 58.

THIS is considerably larger than the first edition, and from being an elementary guide to the examination of the throat, nose and ear with a few hints on local treatment, it has grown into a really very useful practical guide to the diagnosis and treatment of these diseases. The writer very wisely, we think, deprecates the increasing inclination of young Surgeons to 'go in for' some form of specialism at a very early period of their careers, inasmuch as it inevitably results in narrowness of view. As he pithily puts it, the profession is entrusted with the bodily welfare of men and women, not of

this or that organ. Such a book as this, written for senior students and junior practitioners, is most helpful and is a good introduction to the larger treatises of Tilley, Lennox Browne, Politzer, etc. It can be confidently recommended to those for whom it is intended.

Practical Gynæcology.—By NETTA STEWART and DR J YOUNG. Edinburgh: Oliver and Boyd, 1909. Price 5s.

THIS is an admirably practical little book on gynæcology by Miss Stewart of the Edinburgh Royal Infirmary and Dr J Young. It aims at giving on a short manual a good account of the methods of examination and treatment used in gynæcological practice. It being intended both for students and for nurses, full details of operative procedures are omitted, but full descriptions are given of the preparation for and after-treatment of the different operations, and especially well described are such non-operative procedures as douching, the vaginal tampon, etc.

The little book is well got up and very well and clearly illustrated. It deserves to be successful.

Aids to Obstetrics—By NALL and LONGRIDGE. Seventh Edition. London: Baillière, Tindall & Cox, 1909. Price 2s 6d net.

THE seventh Edition (25th thousand) of this well-noted Aids has just appeared. In it the work has been done by Dr Longridge, of Queen Charlotte's Hospital, who has thoroughly revised it and brought it up to date.

It should certainly prove most useful to students preparing for examinations.

Allbutt and Rolleston's System of Medicine.—New Edition Vol IV, Pt 2. Macmillan & Co.

THIS is an entirely new volume of this famous *System*. The subjects of diseases of the ear, nose and throat have been included in one volume, and in bringing out this edition the general editors have been much assisted by Dr McBride and Sir Felix Semon. The result is a most authoritative volume on these special subjects. The methods of examination are described by Greville, MacDonald and Herbert Tilley. Mr Ernest Waggett treats of rhinitis, epistaxis, syphilis and new growths and malformations. Tilley has the chapter on diseases of the sinuses, Sir Felix Semon writes of neuromas, hypertrophy of the pharyngeal tonsil, and aided by Dr P Watson Williams of diseases of the pharynx and larynx, trachea and air passages.

Dr T Barr, Dr Porter, Mr Hunter Tod, Dr Cresswell Babel, and Dr Keir Love write of diseases of the ear.

The volume is very fully illustrated with numerous plates, figures and diagrams.

This volume is likely to remain for a long time as the authority on diseases of the throat, nose and ear.

Some Small Medical Books — I — Clinical Guide to Medical Cases Part I By A H M MUDALIAR, L M & S, of the Royapuram Medical School, Madras Madras Temple & Co, 1908 Price 12 annas

II Practical Hints on General Medicine By K S AGNIHOTRI, Ph G, Hospital Assistant Kolhapur State Mission Press, 1908 Price 12 annas

III Guide on Compounding By ANGORIA B MANISHANKER Rising Star Press, Rajkot

IV Indian Plants and Drugs By K M NAD KARNI Madras Norton & Co, 1908 Price Rs 4

THE first of the above books is a compilation intended for the senior student "to help him in drawing up cases entrusted to his charge"

It is a very useful little book of its kind, in fact, is a cheaper form of the numerous "Aids" and "Essentials" published by various firms. If used properly, they have their use.

(2) The Practical Hints by Mr K S AGNIHOTRI, author of a popular book entitled "The General Dispenser"

It is intended for "the requirements of practitioners who desire to keep abreast with the progress of modern treatment"

It is in alphabetical form for easy reference

The third little book on the above list is a guide on compounding, written in the vernacular. It gives the doses and common uses of medicines and general instructions to compounders for whom no doubt it will prove useful.

The fourth book on our list, Mr Nadkarni's Indian Plants and Drugs, will appeal to all those interested in the spread of the use of indigenous drugs.

The book is apparently intended for the general public as well as for the medical profession.

It is full of interesting matter, but we cannot see that it in any way is likely to replace other well-known books on the same subject, and as regards the greater use of indigenous drugs, we think the tendency of Indian practitioners is quite the other way. They are too much inclined to run after the latest drug or new poison cleverly advertised by pushing German and American firms of drug manufacturers, and if this book will help to drag the Indian practitioners from seeking out and using new synthetic preparations with fancy names and persuade him to go back to the numerous useful drugs of his own country, it will be of great use and value.

Handbook for Attendants on the Insane — Fifth Edition, revised, 23rd thousand London Bailière, Tindall and Cox, 1908 Price 2s 6d

THIS well-known manual has been revised by a Committee of well-known experts, a revision having become necessary owing to an extension of the system of the training and examination for the Certificate of Proficiency in Nursing the Insane.

It was also found that the training already given had created a strong demand for some advanced teaching.

The book is published by the authority of the Medico-Psychological Association.

The book contains sections on anatomy, causation of disease, accidents and first aid, description of disease symptoms, as fever, etc., admission of patients, nursing, the nervous system, the mind in health, general remarks on the mind in disease, care and nursing of the insane, diseases of the nervous system and general duties of an attendant.

The very fact of the continued demand for this book shows the enormous gap between the trained attendant in an English Asylum and the eight-rupee-a-month "keeper" in an Indian Asylum. The book is miles over the head of Indian keepers, but should be studied by all medical subordinates in our Asylums in India.

Reports of the Society for the Study of Disease in Children — Vol VIII (session 1907-08) Editor GEO CARPENTER, M D London J & A Churchill

THE volume gives a full report of the working of this most useful Society.

Among the papers will be found one on associated movements of the upper eyelid and jaw by Mr Sydney Stephenson and on tuberculosis of the ribs by the same writer, one on rheumatic hyperpyrexia by Mr Lock, temperature 110° in a child of 6 years. A good discussion on inherited syphilis papers on the pylorus, intestinal obstruction, infantilism, bronchiectosis and modern modes of treatment by "exercisers" and numerous other papers make up this handsome volume.

Current Literature.

FOREIGN EXTRACTS

Venereal Prophylaxis — As the prevention of venereal disease is of the greatest importance not only to the individual but also to his descendants, it is of service to note that both Metchnikoff, the originator of the method of prevention of contagion by calomel-ointment, and Neisser, the veteran syphilographer, insist upon the fact that an ointment which contains but a small proportion of the salt is of no value whatever (obviously it is worse than useless, in that it might give rise to a false sense of safety). Metchnikoff's formula given in the *Annales de l'Institut Pasteur*, 1907, p 753, is thus — Calomel 33, lanoline 67, and vaseline 10 parts. This ointment, if well rubbed in, will "kill" infection even after some hours, as has been proved experimentally.

For the prevention of gonorrhoeal infection the instillation of a few drops of protargol solution into the urethra has been found to be of the greatest service in the German Navy, in which the results of a liberty day ashore are not now by a long way so untoward as they used to be, and are still in our own Navy. The instillation is carried out in the sick bay immediately on the return of the liberty men.

Helminthiasis—In the *Deutschen Med. Wochenschrift*, No 35, of 1908, W. Telemann recommends that five portions of the stool to be examined be taken, each of the size of a pea, and shaken up in a test tube with a mixture of equal parts of pure HCl and ether. The contents of the tube are then passed through a fine hair sieve, and are then centrifugalized, the insoluble elements of the stool and the parasites' eggs being thus collected at the tip of the centrifuge tube. By this method of treatment the eggs, even when in small number, may readily be detected when the centrifuge rest is examined under the microscope.

The schizogony of macrogametes—In the *Archiv für Schiff- und Tropen Hygiene*, for April 1908, appears an article by Bluml and Metz of the Dutch Indian Medical Service, of which the following is a translation, which we give as the subject is of interest to so many of us here in India—

As soon as the human body has reacted to the deleterious influence of the *palmodium vivax* we have—as Schaudinn wrote in the *Arbeiten aus dem Kaiser Gesundheitsamte*, 1902, p. 229—"the appearance of sexual forms, which are slower in their growth, but more resistant, and thus less liable to noxious influences. These tend to cause the species to persist, and, as in the case of other protozoa, they here bring about a gradual cessation of asexual reproduction." Viewed in this light the gametes are the late progeny of the parasite of tertian fever, more active than ordinary schizonts, and destined to replace the asexual reproductive forms which have been exhausted. Owing to their being more highly specialized than are the ordinary schizonts, they are more seldom present in the peripheral blood than these. Ruge, from the counts which he has made, estimates that in cases of fresh infection there are but 17 to 25 gametes present to every 100 schizonts, while in recidival attacks the number of gametes rises to 56 per cent. The gamet of tertian fever in its fission stage is a still more rare phenomenon, and to Schaudinn belongs the honour of having observed and first described it. Since he—in the case of Frau Kossel—saw this fission stage, no one else has been able to find it (*Geneeskundig tijdschrift voor Nederl. Indie*, 1907, p. 218). Through the kindness of our colleague Dr. Bluml, Garrison Surgeon at Koeta Radja we have had the opportunity of seeing several gametes undergoing fission, and also, in six blood films, taken from two native soldiers and three convicts, of seeing gametes undergoing fission alongside schizonts which had reached maturity and were undergoing fission, while at the same time many young gametes and schizonts were present in the film.

It was Schaudinn's description which led us to the conclusion that we had before us macrogametes in the fission stage.—The body of the macrogamet becomes divided into two sections. The much enlarged nucleus lies in a dark coloured much pigmented section, while in the coarser, less pigmented alveolar section lie many nuclei which are undergoing division." Some of these macrogametes in the fission-stage, which—as we have said—were found in a film in which sporulating schizonts were also present, were drawn by us, on a much enlarged scale. We used the Romanowsky stain, and a Leitz 1/12 130 oil-immersion lens, with the strongest eyepiece that we had, so that our drawings were done from nearly $\times 1250$. We found in the films as Schaudinn had seen, a separation of the plasma of the macrogametes into two differently coloured parts, the two differently coloured parts of the nucleus lying in these. The light pink enlarged but still unbroken nucleus, in which red threads or granules are seen, lies close to the dark blue protoplasm, which with its nucleus is destined to disappear. In some macrogametes the separation of pigment is very clearly seen. Its yellowish-brown colour distinguishes it from the "dotting" in our drawings. In the protoplasmic part of the macrogamet lie, small, dark crimson, often dark-violet chromatin granules, in pairs or scattered. The protoplasm

itself having a peculiar tint, between blue and light violet. We saw this transition tint also in macrogametes which had still on their borders remains of the erythrocyte (with Schueffner's dots), which had served as nutriment. The staining of the macrogametes had lasted for about 40 minutes. We received the impression as if this protoplasm, with its violet like colour, stood in special connection with, or close relation to, the growing and dividing chromatin, as if it were destined to serve as the nucleus of the coming generation.

On page 218 of his article Schaudinn described the relations of the protoplasm and the dividing chromatin thus—"At the beginning of the multiplication of the nucleus there is but little nuclear substance to be seen, the individual chromatin particles are clearly defined, but whilst the multiplication is in progress, along with the division of the nucleus we have an extraordinary proliferation of its substance. The chromatin is increased as the division goes on, and the irregularity of its distribution is the result of this combined growth and division. When the nucleus becomes constricted prior to division, in its halves we have already a deposition of new masses of chromatin, which assume the shape of alrette like agglomerations and lengthy bundles. When this new-born chromatin appears out of the protoplasm the latter seems to undergo in the vicinity of the finished nuclear substance, a change whereby it becomes hard to stain. Thus, I explain the difference between the appearances seen when we use a weak and a strong solution of Romanowsky's stain." In the immediate vicinity of the dividing chromatin in ordinary schizonts there has been observed a preliminary stage of chromatin, which appears as a substance whose staining is somewhat difficult. Schaudinn considered that the chromatin is formed from the protoplasm, either by this as a whole undergoing a change or by its excreting it. And in the case of our macrogametes we think that Schaudinn's explanation, given in the case of schizonts, holds good. We believe that the violet hue of the protoplasm around the masses of chromatin, which are undergoing division and assuming peculiar forms is due to young chromatin, perhaps in a fine state of division, which is present in the protoplasm. In our blood films the macrogametes on close examination appear to show various stages of this process. One recognizes the preparation of the chromatin in the nuclear bodies, it then divides into a light and a dark portion, and finally forms so called nuclear plates. One also sees a nuclear plate which has broken up into free rapidly growing, and peculiarly arranged chromatin granules, of which a few are still to be seen in the neighbourhood of that pale portion of the nucleus which is fated to disappear. Further, we see that there are distinct spaces between those parts of the nucleus, which once were in close contact with each other. The pale nuclear residuum lies in a darkly stained protoplasm, and as near the periphery of the macrogametes as possible lie free, carmine or violet, chromatin particles, the future young parasites, which, as it were, are already making ready to leave the maternal organism. In other films we have their exodus before our eyes. The degeneration of the residuum is already so far advanced, that the pale nucleus which belongs to it has broken up into three portions. The young parasites lie free, and furnished with living protoplasm, and ready to begin a new existence, and thus cause a fresh infection.

I—Native soldier, No 1. Film taken when temp 40°C

Gametes undergoing fission	1
Schizonts sporulating	2
Ordinary young gametes and old gametes	Very many
Schizonts in various stages	Very many, in the film there are 20 infected erythrocytes per square centimetre

II—Native soldier No 2. Two films taken during apyretic stage

III —Not ascertained

	Film I	Film II
Gamets undergoing fission	11	12
Sporulating schizonts	180	140
Macrogametes, young and old	Very many	Very many
Microgametocytes	Few	Few
Schizonts in all stages	Many	Very many
Residual bodies of gamets	Many	Many

IV —Chinese convict Pamo Nai Ki One film taken when temp 39° C Out patient

Gamets undergoing fission	9
Sporulating schizonts	142
Macrogametes, young and old	Very many
Microgametocytes	Few
Schizonts, young and old	Very many

V —Chinese convict Lau Heng Hok One film Out patient Patient is a gardener, who has been for months under medical observation, has not had fever, but now has a typical malarial attack

Gamets undergoing fission	Some—not counted
Sporulating schizonts	Many
Macrogametes, old and young	Many
Microgametocytes	Few
Schizonts in all stages	Many

VI & VII —Balinese convict, Two films For months no fever, as his medical history sheet shows Films taken in the apyretic stage, after patient had suffered from fever for two days

	Film I	Film II
Gamets undergoing fission	12	
Sporulating schizonts	More than 300, count ceased when 300 counted	
Macrogametes, young and old	Very many	No count made
Microgametocytes	Few	
Residual bodies	Few	
Schizonts in all stages	Numerous, many in stages of double infection	

The above tables give the exact results of careful examination of the films, and one may deduct from them the condition of the patients, as to their infection with the parasite. In these six blood films, taken from five individuals, we observed the division of the macrogametes, at a time when the schizonts which were present constituted a physiologically perfectly active generation. In four films the sporulating schizonts numbered from 140 to over 300 per film, therefore here one cannot speak of a cessation of asexual reproduction. The generation of parasites was so active that double infection of the erythrocytes was regularly present. What Schaudinn took to be the highest degree of infection of an erythrocyte with 4 parasites, we observed in some instances, and in one case we found 6 young parasites in one erythrocyte. We also saw a case of double infection, in which in the same corpuscle a half grown gamet and a dividing schizont were present. From these facts we conclude that macrogamet division is not confined to recidival attacks. In two of our patients there has been no fever for months, the exact period could not be determined by Dr Bluml, owing to the rapid and frequent changes in the *personnel* of the convicts working at Koeta Radja. Neither before nor during the attack had the patients been exposed to injury or chill, which are generally held to be exciting causes of a recidival attack. One has, then, some grounds for calling these cases fresh infections. In Frau Kossel's case, which was described by Schaudinn, there was certainly a recidival attack, and over exertion was present as an exciting cause of the attack. In her case the attack may be explained by the resistant power of the macrogametes which, after the death of the schizonts that had been present, developed schizogony, for Schaudinn made no mention of the simultaneous presence of dividing macrogametes and sporulating schizonts in his article, nor does Ziemann mention it in his article in Meuse's Handbuch der Tropenkrankheiten. Therefore,

we believe, that we have observed what had previously been unknown to occur in the case of *plasmodium vivax*, and since in our films, which may be examined by any one, it is established beyond all cavil that perthogenesis, or division, of macrogametes is not confined to cases of recidival attack, the simultaneous existence of macrogamet schizogony and schizont sporulation must be accounted for by basing Schaudinn's hypothesis on a broader foundation. We would remind our readers that so early as 1901 Grassi expressed the opinion that gametes do not constitute an immunity form of the parasite, but circulate in the blood alongside ordinary schizonts. He wrote somewhat as follows — 'When one has perused the literature one would almost come to the conclusion that the production of gametes depends on a certain immunity to malarial infection, which the human organism has acquired, as the result of repeated attacks of fever, were it not proved that the development of gametes begins after the first attacks, i.e., at a time when there can be no question of immunity. Judging from the facts which have now been collected, it seems to me to be more probable that gamet-formation is a question of heredity, etc.' The German school too, following Ziemann, accepts the view that, in a case of fresh infection, even during the first febrile attack gametes are present in the blood. Thus then, since gamet formation does not depend upon acquired immunity, nor upon noxious influences exerted upon the brood of schizonts—as for example by quinine—we may well consider the question whether the fact that we found, alongside sporulating schizonts, macrogametes with forms of division of the nucleus is not a positive proof of the correctness of Grassi's hypothesis. On this assumption the dividing gametes produce gametes, just as the dividing schizont produces schizonts. In our films we had, along with sporulating forms, very many young gametes and young schizonts, and also free residual bodies, and it appears to us to be legitimate to assume the existence of a connection between the young gametes and the free residual bodies, and to see in this a support of our belief that both gametes and schizonts at all events sometimes make provision for their offspring. In recidival attacks the function of the gametes would undergo a change, in so far that, instead of producing young gametes, well provided for, as their life would be a long one, they would produce young schizonts, which although physiologically less elaborated (minderwertig) are more hurtful to the organism of the host, whose resisting power they therefore sooner overcome, and thus the *plasmodium vivax* obtains better conditions of life at the moment when, there is a danger that the species will be totally destroyed by the human organism which it has infected, as a result of that organism becoming used to the parasite, or some other process. Instead of looking upon the sexual forms as being adaptation forms of the schizonts, we are inclined to look upon them as being specific forms, of which the schizonts are an adaptation, which has been needed, and is fitted to render the body of the new human host so weak, by pathological action, that it can present a good breeding ground for the sexual forms of the *plasmodium vivax*.

Whether this view be right or wrong, we have thought that our discovery is of sufficient importance to be communicated to the readers of this periodical. We earnestly desire to submit our hypothesis to the criticism of those who are more experienced in the domain of malarial research, above all because no less a man than Schaudinn himself remarked "As in most cases only small quantities of peripheral blood are at one's disposal, one must be very careful about drawing inferences from such observations."

A new method of performing perineal prostatectomy —Wilms of Bale, at the last meeting of the German Surgical Society, described his method of enucleating the prostatic tumour through an incision in the perineum, made directly down through the tissues at the left descending ramus of the pubes,

There is thus no danger of wounding the rectum, and as the bulbo cavernosus and the vessels which lie on it are avoided, the bleeding is not excessive. The capsule of the tumour is opened by a touch of the knife, or by blunt dissection, and the tumour is shelled out by the finger, just as in the transvesical operation, the urethra being torn across.

Hypodermic injection of quinine—Giemsa, whose name is familiar to all our readers, as that of the discoverer of a most excellent stain for blood films, has made many experiments with a view to determine the best vehicle for hypodermic injections of quinine. The injection should have a reaction as nearly as possible that of the tissue juices, so that it may cause little discomfort and be easily absorbable. It should also be capable of being sterilized by boiling. He has found that by means of the ethyl ester of carbaminic acid (ethyl urethane) the feebly basic monochlorhydrate of quinine is rendered very soluble, and the preparation does not undergo alteration on being boiled.
(*Muenchener Med. Woch.*, No 23 of 1908)

W D SUTHERLAND, M D

Correspondence

THE DATE OF SERVICE FOR PENSION GRIEVANCE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Up to 31st March 1890, successful candidates for the Indian Medical Service were given their commissions from the date of entering Netley. In the year 1890, however, the system was introduced of dating the commissions from the day on which the candidates passed the final examination on leaving Netley. This system continued in force for twelve years but in the summer of 1902, the privilege so long enjoyed before 1890, was restored to the service, and the batch of candidates who passed in August 1902, dated their commissions from 1st September 1902, that is the day on which they entered Netley.

It appears, therefore, that the officers of the Indian Medical Service who entered between 1891 and 1902 have to serve about four months longer for each step of their promotion, and also for their final pensions, than all those officers who preceded and followed them.

This is true of about three hundred and fifty I M S officers who are under what we may term the "interim regulations."

Owing to the change in the regulations in 1902, there is only thirty seven days difference in seniority between the last batch of men under the "interim regulations" and the first batch under the newly restored old regulations. Usually there is almost exactly six months difference between successive batches.

Early in 1905 regulations were introduced, making it possible to obtain accelerated promotion from the rank of Captain to that of Major under certain stipulated conditions. This acceleration was fixed at a maximum of six months, in order to make it impossible for an officer obtaining accelerated promotion in one batch to pass over the head of any officer in a preceding batch who for various reasons might not succeed in obtaining such acceleration. The time, however, will undoubtedly come when some officers dating their commissions from 1st September 1902 will be given accelerated promotion and so pass over the heads of some officers dating their commissions from 26th July 1902 who will fail to obtain the necessary acceleration to keep ahead of the batch below.

I have little hesitation in believing that this was never contemplated by those who framed the regulations. Had such a contingency been considered, one cannot help thinking that the concession, which was so strongly urged at the time, would have been granted, e.g., permission to all those under the "interim regulations" to ante-date their commissions to the date of entering Netley. As noted above, if the conditions continue unchanged an *impasse* must occur in 1914, for it is surely idle to hope that the difficulty will be quietly solved by everyone in the 1st September 1902 batch failing to obtain accelerated promotion, or everyone in the previous batch succeeding in obtaining the same. This unusual result could probably be obtained only by official juggling, and therefore need not be considered within the range of probabilities.

It is not, however, too late to make the concession earnestly desired by the three hundred and fifty officers under the "interim regulations" (who rightly or wrongly feel that they are labouring under a disadvantage which savours of injustice) and at the same time remove the possibility, mentioned above, of the *impasse* in the smooth working of the promotion regulations.

It will be objected that the concession asked for, though desirable, is too expensive for the Government of India to make, especially with the extra drain on its exchequer consequent upon the grant of increased pay to the Indian Army. It must be remembered, however, that by the introduction of the "interim regulations" in 1890, the Government of India (since 1st September 1902* has been saving money as compared with the expenditure under the old regulations. In this matter, however, a compromise might be effected by the three hundred and fifty officers concerned agreeing to forego the extra pay involved on promotion from Captain to Major, for the four months concerned in the change, whether that extra pay be due in arrears or be prospective, while they would still preserve their right to the extra pay on first promotion to Lieut. Colonel, and to the earlier date for taking their pension.

Finally, it is always true that "*bis dat qui cito dat*," and the concession desired by the officers concerned will be all the more thankfully appreciated if it be not delayed until difficulties in the working of the promotion rules make some change imperative.

I have the honour to be,

Sr,

Your most obedient servant,

"INTERIM"

PUERPERAL ECLAMPSIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The following case may perhaps be of some interest to your readers—Hindu woman, aged about 35. General health apparently good. Was born while her mother was suffering from insanity developed during pregnancy. Had convulsions when a child. Was married about 15 years ago. First child about 11 years old alive. Second pregnancy resulted in an abortion between the 6th and 7th month. Third child aged about 8 years alive. Fourth child aged about 4 years alive. Fifth pregnancy resulted in another abortion at the 5th or 6th month.

The woman had gone to answer a call of nature and the fetus was delivered suddenly. She cut the cord herself. The placenta did not come out at the time and was not seen to come out subsequently. There was much haemorrhage and she remained ill for about a month during which period there were convulsions.

Two months after apparent recovery she became pregnant again and was when I saw her, in the 8th month. On the night of Sunday the 29th November, she complained of pain over the chest and shoulders. There was no other symptom. Early next morning she got convulsions. The same evening I was asked to see her. She had then had about 18 convulsions and was semi comatose. The bladder was empty, the os was about 1½ inch and the head could be felt. Her temperature was normal, respiration quick, pulse good. The child was still alive but the heart sounds were irregular. I advised her immediate removal to the hospital as it was impossible to treat her properly at her house. Her husband gave a history of syphilis, though she had not been known to have developed any symptoms of the disease. A catheter was passed but no urine was drawn. Before medicines could be given she had one more fit to check, which a small quantity of chloroform was administered. When the fit was over a drop of cotton oil was put on the tongue, pilocarpin was injected hypodermically and chloral and bromide given by the mouth. She passed two motions, recovered consciousness and seemed to be improving. The child died shortly after she reached the hospital. Early next morning she gave birth without any interference to the dead child. The placenta was expelled and there was no trouble of any sort. Ergot was given after the expulsion of the placenta. The temperature now rose to 100 and coma reappeared. Pilocarpin was injected and thyroid extract given with improvement which was of short duration. Inhalation of amyl nitrite, a small quantity of milk, ether and brandy by the mouth and saline injections per rectum were also given but restlessness and difficulty of breathing increased and the heart grew weaker. After the first administration of chloral and bromide she had no fits. She passed urine but it could not be examined as it was passed in the clothes. Restlessness

* Note.—Because 1st September 1902 is the date on which the first batch under the "interim regulations" should have attained the rank of Major, had the "interim regulations" not been introduced.

increased at night and a small dose of morphia had to be given. By morning she was evidently sinking and she died at about 10 A.M. on Wednesday. Asphyxia was the most prominent symptom. Oxygen could not be administered for want of the necessary apparatus.

I saw one of the convulsions. The movements were not purposive and automatic like those of hysteria, and the fit lasted only about 3 minutes. The woman was senseless and a part of the tongue was bitten before anything could be done to prevent it. These facts and the previous history exclude hysteria. So far as could be ascertained there was no epileptic cry nor was there an aura unless the pain in the chest and shoulders be considered one. In epilepsy it is only in what is known as the "status epilepticus" (which is rare), that continued coma is seen and death occurs without an additional cause such as an accident. Playfair (Volume I, page 269), says that in epileptic women labour often goes on satisfactorily without any attack. Was this case then one of puerperal eclampsia in a woman with a history of epilepsy? Were the convulsions she had at the time of the previous abortion due to a slighter attack of the same disease? In treating her could anything more have been done in the circumstances? In puerperal eclampsia, after delivery, patients usually recover. In this case she suddenly took a bad turn and died. There was no recurrence of fits. Death was due as usual to asphyxia and exhaustion.

Yours, etc.,
U N BANNERJI, M.B.,
Asst. Surgeon, District Hospital, Ballia

A ROUND CELLED SARCOMA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

KHANTAR SHAHU aged about 26 years, Hindu male, was admitted in the Bunwari Lal Hospital at Laheriasera on the 17th September 1908 and died on the 10th October 1908.

History of the Case—Two months before he came to Hospital, he began to feel pain in the middle of his back. For sometime the pain was severe and then lessened a little. Shortly after this, he began to lose control over his legs and was unable to move without the help of a stick and then even his gait was lumpy. His urine gradually became more and more scanty. He became emaciated day by day. About a month after the commencement of the symptoms noted above, his left eyeball became painful and it began to protrude, and he gradually became blind in that eye.

Condition in Hospital—When he was admitted in Hospital his left eyeball became almost disorganised and it protruded so much that it was suspected that there was a growth there. His urine was scanty. It was measured from day to day. On the first day it was found to be only 14 ounces in 24 hours. It increased a little afterwards, namely, 30 ounces in 24 hours. When the eyeball was found completely disorganised it was excised on the 24th September 1908, but it was found free from any growth. After this he began to get fever. His temperature ranged at first between 99° F and 100.4° F, but later on the temperature rose a little higher 101.6° F. Lastly he began to get retention of urine and the pain over the back, which he had all along increased. He, at last, lost all control over the lower extremities and was completely unable to move. He remained in this condition for about a week and then died.

Post mortem examination revealed the following—A growth from the periosteum of left orbital plate which pushed the eyeball forward. The growth was not attached to the eyeball nor to the optic nerve or muscles of the eyeball. Heart was normal. Lungs floated in water, but a similar growth was found on the left orbit was found all over the front and back of spine and extended to that portion of the right lung which was adjacent to the spine. When the lung was separated this portion of the lung got detached. A small bit of similar growth was on the outside of left lung. Similar growths were also found behind the sternum and many ribs. They were defined in outline but on incision they were found attached to the bones, namely, sternum and ribs, growths were also found under the muscles of back. Liver was enlarged and fatty. On incision a similar growth was found in its substance. Spleen was enlarged and pulpy. On incision nothing abnormal was found. Mucous membrane of stomach was congested. Kidneys were normal. Bladder was full of urine. Peritoneum was free from adhesion and deposit. Brain was normal. Large intestines were congested here and there and contained tarry stools. Small intestines had prominent vessels all over the mucous membrane. Larynx and trachea were normal.

Microscopic examination of the growth in the orbit showed that the growth was a round celled sarcoma.

LAHERIASERA, } Yours, &c.,
DURBHANGA, } JOGENDRA NATH BOSU,
12th December 1908 } Assistant Surgeon

SPECIAL ARTICLE

SOME MOTOR CYCLES AT THE STANLEY SHOW

In spite of the prognostications of the prophets of evil, there can be no doubt that the motor cycle has come to stay.

It has obvious disadvantages, many of which are more apparent to other users of the roads than to the rider, but on the other hand it is so speedy and economical a means of transit that its virtues are increasing in number every year.

This year's show provides ample proof of steady progress in the evolution of a satisfactory machine, and the growing popularity of the light weight machine is perhaps the most striking tendency of the year.

Among the heavy weight motor cycles for 1909 the Triumph may be selected as the most popular, it has a 3½ h.p. single cylinder engine of 84.86 mm bore and stroke magneto ignition, variable pulley giving low and high gears, its weight is about 190 lbs, and its price £48.

Other machines closely resembling the Triumph in type are the Quadrant, the Bradbury and the Minerva, the latter is, however, lighter and costs £39 10. The N S U differs in having a free engine and clutch, it costs £43 10. The F N is a four cylinder 4½ h.p. machine with gear drive, and is sold at £50.

The Humber has a two speed gear and clutch of the Roc pattern it sells at £45. For the man in India who has not made a special study of the various machines, the safest course would be to choose the machine that has caught on and has proved its reliability in numerous tests, viz, the Triumph.

Of the light weights the Swiss built Motosacoche may be taken as the type, it has been well known on the continent for ten years. It is really a self contained motor, which can be easily attached to an ordinary bicycle, and with accumulator ignition, it sells for £19, or with magneto for £3 extra. It is, however, usually sold with a specially built Rover bicycle at £32 or £35 according to the ignition, the whole machine weighing 80 lbs and being capable of a speed of 30 miles an hour. At first sight one feels inclined to regard this motor cycle as an interesting toy, but an examination of the machine and its records leaves no doubt as to its being thoroughly practical. It should be just the thing for districts where there are stretches of very bad roads and rivers to cross, for owing to its lightness it can easily be pedalled or carried, besides if there should be any breakdown, it takes only a few minutes to detach the motor which can be sent home by a coolie while there is left in ordinary bicycle on which to complete the journey.

The N S U 1½ h.p. is almost a facsimile of the Motosacoche, but the engine is not as readily detached it is sold complete at £34 10.

The Moto Rêve is a twin cylinder 2 h.p. light weight of excellent construction selling it at £3 weighs 90 lbs.

Medium weights are the F N two speed, gear driven 2½ h.p. weighing 120 lbs at £40, and the Douglas 2½ at £38. Both of these appear to be high grade and thoroughly practical machines. The points in favour of the high power machines are, their greater strength and speed, their reliability and their capacity for taking and extra passenger in a side car or trailer. The light weights cost less, both to buy and to keep running they make less noise, are more easily pedalled, and can readily be carried across shallow streams. There has been a great deal of discussion as to which of the types is the more satisfactory, but it may be taken that for a heavy weight rider in a district where the roads are good and there are few rivers to cross, the heavy weight machine will probably appeal, but the light weight, especially a machine of the Motosacoche type will

naturally be chosen in places where the machine has to be frequently carried, and where a heavy machine with its powerful engine would be difficult of control. The medium weights are to some extent a compromise between the light and heavy weights, they are rapidly becoming popular. The motor bicycle should be regarded as suitable only for a moderately robust man who is prepared to take some trouble to master its mechanism, it cannot be recommended to the man who "wont be bothered," but for the young or middle aged medical man who has much road travelling to do, and who is generally accustomed to the reception of new ideas, the motor propelled vehicle will be a perfect boon, and unless he can afford to spend a considerable amount in gaining his experience he will be well advised to start with a light or medium weight motor cycle.

Spring forks, Brook's 10¹/₂ saddle, non skid tyres such as the Clincher or Shamrock rubber studded or still better the Michelin steel studded tyres, with spare belt, exhaust valve and sparking plug with such other spares as the makers may recommend should be specified.

The addresses of the agents for all the well known makes will be found in the 'Motor Cycle,' but a few are appended here—

Douglas Bros	Kingswood, Bristol
Minerva Motors Ltd	40, Holborn Viaduct, London, E C
Quadrant Motor Co	Coventry
Triumph Cycle Co	Coventry
The Moto Reve Co	138 142, Gray's Inn Road, London, W C
Humber Ltd	Coventry
Motosacoche, H & A	
Dufaux	65, Holborn Viaduct, London, E C
Bradbury & Co	Oldham
F N Motor Agency	106, Great Portland St., London, W
Minerva Motors Ltd	40, Holborn Viaduct, London, E C
N S U Motor Co Ltd	186, Great Portland St., London, W

It need not be said that when there is a local agent for any of these makes it is desirable to get the machine through him, as he will naturally have a much more friendly feeling towards the machine when it comes for repairs or adjustments.

J W M

Service Notes

THE MEDICAL SERVICES IN 1908 *

For the Medical Services, on the whole, the year 1908 has been uneventful. Seldom is the British Empire at peace, the gates of the temple of Janus are rarely shut. But two expeditions on the North West Frontier of India, the first of which was so rapidly and brilliantly carried out as to earn from *Punch* the title of "Willcocks' Weekend War," and the usual desultory fighting in Africa, were the only warlike operations of the year.

There was a rapid flow of promotion in the R A M C in which five Colonels became Surgeon Generals, and twelve Lieutenant Colonels reached the rank of Colonel, and also in Bombay, while Bengal and Madras lag far behind. In Bengal one Officer was promoted to Colonel, with 31½ years' service, the first step for a year and a half. In Madras one Colonel became Surgeon-General, and two Lieutenant Colonels became Colonels. This block of promotion in Bengal and Madras will, however, probably wear itself out in the course of the next four or five years when the men of the years 1882 to 1885, when few only were recruited, reach administrative rank. In the meantime, individuals will suffer, by delay in or loss of promotion. Some of these individuals will obtain the 'compensation pensions', others

will probably fail to get even these consolation prizes. But the bulk of the service will suffer little or not at all. The grant, made during the year, of a new graduated pension, £600 at 27½ years service, may also, in the future, quicken up promotion to some extent.

In Bombay the course of retirement and promotion during the year has been curious. This service has one Surgeon General, three Colonels, all on military duty, and nine "selected" Lieutenant Colonels. Surgeon General Greany took leave in April, and retired on 1st October. The senior Colonel, who officiated for him as Surgeon General, while he was on leave, was not confirmed. The other two Colonels retired, from 14th November 1908, and 1st January 1909. The senior "selected" officer also retired. The second and third also retired, both being ineligible for promotion, having passed the age of 55 and having been given special extensions to complete thirty years service for pension. The fourth and eighth were promoted to Colonel. The officer who stood ninth and last on the list, on 1st January 1908, was selected for the vacant appointment of Surgeon General. At the time of his selection he was fourth on the "selected list." Had he been in the Bengal Service he would hardly have attained to the "selected list" by that time, and if he had been in Madras he would certainly not have done so. The junior Colonel in Bombay entered the service on the same day as the junior "selected" Lieutenant Colonel in Bengal and six months later than the junior "selected" Lieutenant Colonel in Madras.

How far Bengal and Madras have fallen behind the R A M C and Bombay in the race for promotion is shown in the table below, which gives the dates of first commission of the junior Colonel and junior "selected" Lieutenant-Colonel in each service, as shown in the Army Lists of January 1909, and brings out, better than words can do, the way in which Bengal and Madras are being superseded by the other two. As the officers of all four services are on different lists for promotion, this does not make much practical difference to any of them, but the point is of interest. Such is the luck of the game!

Date of first commission of junior	Colonel	"Selected" Lieut Colonel
R A M C	5th Feb 1881	4th Aug '83
Bengal	31st Mar 1877	2nd April 1881
Madras	30th Sept 1878	2nd Oct 1880
Bombay	2nd April 1881	30th Sept 1882 *

The most junior officers of the Bengal, Madras, and Bombay services attained the rank of Major during the year, as also did the fortunate few officers of the junior Indian Medical Service who were given special promotion to that rank six months before those who entered the service along with them. The Indian Army List of January 1909 shows 756 officers on the active list of the I M S of whom 337 belong to the senior services, (Bengal, 204, Madras, 81, Bombay, 52), and the remainder, 419, to the junior service, which now far surpasses the three older ones put together. The first batch of the junior service have now almost completed their twelfth year, the seniors range over 24 years, 1873 to 1896.

The number of deaths of men on the active list during the year has been very small, only four in the R A M C, one in Bengal, and three in the junior I M S. Neither Madras nor Bombay had a death during the year. The only man in the senior services who died was

* [For this record we are as in many former years indebted to Lieutenant-Colonel D G Crawford, I M S. Ed., I M G.]

* Since the above was written, the promotion of Colonel R W S Lyons, brings the Bombay dates still later.

THE MEDICAL SERVICES IN 1908

Lieutenant Colonel F S Peck, one of the most popular and respected officers in the service, who was much missed both in Calcutta and in Behar.

The number of deaths among retired officers was also not very large 23 in the R A M C, 17 in Bengal, four in Madras and three in Bombay. Among the best known ex officers of the R A M C, who passed away were Surgeon General Sir James Hanbury, Brigade Surgeon W S Oliver, the inventor of the "Oliver" whom many of the seniors now serving must retain kindly recollection, as Assistant Professor of Military Medicine at Netley. The best known Bengal officers who have joined the majority were Deputy Surgeon General A C Macrae, who served in the Sutlej Campaign, Brigade Surgeon R Lidderdale, formerly Sanitary Commissioner of Bengal, and Surgeon Major Theodore Duka, a veteran of the Hungarian rising of 1848. We should also note that one retired Bengal officer, Assistant Surgeon T L Hinton, had completed his century when he died.

The Army List shows 422 ex officers of the I M S on the retired list, viz, Bengal 218 Madras 106, Bombay 94, and the junior I M S, four. No less than 110 of these officers entered the service over half a century ago (Bengal 56, Madras 28, Bombay 26). The oldest Surgeon Major H B Hinton, got his first commission on 14th January 1839, more than seventy years ago, and there are still eleven survivors who entered in the forties of last century. Such a list speaks well for the physique of our predecessors.

THE SERVICES IN 1908

I - BENGAL

A - Deaths

No	Rank	Name	Date	REMARKS
1	Lt Col	F S Peck	9th April	On board P & O S S <i>Peisla</i> , in Mediterranean

B - Retirements

No	Rank	Name	Date	REMARKS
1	Colonel	G J Kellie	15th Oct	(Selected list) extra pension (Do)
2	Lt Col	S J Thomson	17th Jan	
3	Do	G A Emerson	2nd April	
4	Do	J French Mullen	25th May	
5	Do	J W U Macnamara	12th July	
6	Do	J B Gibbons	17th Feb	
7	Do	Sir R H Charles	20th Mar	
8	Do	F Wyville Thomson	14th Mar	
9	Do	W H W Elliot, D S O	15th Nov	
10	Do	A E Roberts	21st April	
11	Do	J C Lamont	10th Mar	

C - Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Lt Col	A M Croft, C I E	Colonel	15th Oct	v Kellie, R

D - Honours

No	Rank	Name	Honour	Date	REMARKS
1	Lt Col	F F Perry	C I E	26th June	
2	Do	J Shearer, D S O	C B	26th June	
3	Do	R C Macnatt	K I H, I C I	1st Jan	
4	Major	J N. Macleod	C I E	1st Jan	

I - BENGAL - Contd

E - Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	D I G	A C Macrae	20th July	Eastbourne
2	D S G	G H Ray	12th Dec	Eastbourne
3	Do	J E Iason	24th Dec	Eastbourne
4	Brig Sur	J Browne	9th April	Shanklin, Isle of Wight
5	Do	G S Sutherland	10th May	London
6	Do	E Bonavia	14th Nov	Worthing
7	Do	R Lidderdale	9th Sept	Torquay
8	Do	R Jameson	21st Nov	Highnam, Argyllshire
9	Surg Maj	T Maxwell	24th Apr	Guildford
10	Do	J B S Browne	7th Oct	Nettisham
11	Do	T Duka	5th May	Bournemouth
12	Do	L F Dickson	25th Apr	British Columbia
13	Do	J Kelly	3rd Dec 1907	
14	Surg Lt Col	T Robinson	3rd Oct	London
15	Lt Col	E Bovill	1st March	Felsted
16	Do	E Cretin	10th Sept	St Leonards, aged 100
17	Asst Surg	T L Hinton	14th June	

II - MADRAS

A - Deaths

Nil

B - Retirements

No	Rank	Name	Date	REMARKS
1	S G	W R Browne, C I E	1st April	(selected list) do do do
2	Colonel	T J H Wilkins	30th June	
3	Lt Col	W A Lee	7th April	
4	Do	C H Bennett	11th Feb	
5	Do	R Pemberton	1st July	
6	Do	H Armstrong	30th June	
7	Do	W F Thomas	6th Jan	
8	Do	K H Mistry	4th March	
9	Do	K C Sanjana	22nd Oct	
10	Do	F G Maidment	21st March	
11	Major	H St J Fraser	9th Oct	

C - Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Colonel	P H Benson	Surgeon Genl	1st Apr	v Browne, R
2	Lt Col	W A Quayle	Genl	1st Apr	2 Benson, P
3	Do	H St C Carruthers	Colonel	30th June	3 Wilkins R

D - Honours

No	Rank	Name	Honour	Date	REMARKS
1	Lt Col	W B Bannerman	F C P, Philadelphia		

E - Death of Retired Officers

No	Rank	Name	Date	REMARKS
1	S G	H Young	15th Feb	England
2	D S G	W H Rean	6th Feb	London
3	Colonel	W E Johnson	24th Nov	Bournemouth
4	Brig Surg	W P Kelly	2nd May	Dublin

III — BOMBAY

A — Deaths

Nil

B — Retirements

No	Rank	Name	Date	REMARKS
1	S G	J Greany	1st Oct	
2	Colonel	W G H Henderson	14th Nov	
3	Lt Col	C Monk	25th Nov	(Selected list)
4	Do	G H Bull	1st July	(Do)
5	Do	F F MacCartie	30th June	(Do)
6	Major	B D Basu	1st May	

C — Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Lt Col	C F Willis	Colonel	14th Nov	Henderson, R

D — Honours

No	Rank	Name	Honour	Date	REMARKS
1	S G	J Greany	G S Pension	1st Apl	Brown (Madras), R

E — Death of Retired Officers

No	Rank	Name	Date	REMARKS
1	Surge Maj	I Miller	7th Nov	
2	Do	T Holmsted	29th Sept	Weston Mare Super
3	Lt Col	F C Barker	10th July	France

IV — I M S

A — Deaths

No	Rank	Name	Date	REMARKS
1	Captain	C S Parker	10th Nov 1907	T H P 28th Aug 1907
2	Do	R L Hagger	7th July	Jacobabad, fall from horse, pig sticking
3	Lieut	J Catto	7th May	Imphal, Manipur, cholera
4	Do	H A Knight	4th Sept	Multan, cholera

B — Retirements

No	Rank	Name	Date	REMARKS
1	Captain	D Steel	1st Nov	On Permanent Half Pay
2	Lieut	C M Roberts	13th Apl	Resigned

C — Exchange

No	Rank	Name	Date	REMARKS
1	Captain	P G Easton	28th Nov	Exchanged into R A M C, with Capt H G S Webb

V — R A M C

A — Deaths

No	Rank	Name	Date	REMARKS
1	Col	H Martin	4th June	Drowned in Lake Chuzenji, Nikko, Japan
2	Waj	F McDowell	6th Aug	Peshawar
3	Capt	T H Stevenson	21st Mar	Woolwich
4	Do	F H Merry	3rd June	

B — Retirements

No	Rank	Name	Date	REMARKS
1	Surgn Genl	W J Fawcett, C B	13th May	
2	Do	W J Charlton	11th Apl	
3	Do	J D Edge C B	9th Mar	
4	Do	R H Quill	8th June	
5	Do	W B Slaughter	31st Dec	
6	Colonel	J Macnamara	29th Mar	
7	Do	G D Lenke	17th May	
8	Do	W L Chester	17th Feb	
9	Do	J J LeV Morris	9th Sept	
10	Do	J F Williamson, C B C M G	6th Feb	
11	Do	C Seymour	12th Apl	
12	Do	C A Webb	19th Sept	
13	Lt col	R L Love	19th Feb	(Selected list.)
14	Do	E L Mannsoll	3rd Nov	Do
15	Do	C G D Mosse	17th Oct	Do
16	Do	G Coutts	25th Feb	Do
17	Do	H K Allport	22nd Apl	Do
18	Do	W Rowney	4th Nov	Do
19	Do	A G Kay	23rd Dec	(Selected list)
20	Do	G J Coates	29th Dec	On T H P (Selected list)
21	Do	A M Davies	17th Sept	
22	Do	H L Battersby	7th Sept	
23	Do	D L Irvine	28th Mar	
24	Do	D F Franklin	22nd Apl	
25	Do	J Gibson	15th July	
26	Do	C W Thie o	21st Mar	
27	Do	J Barnes	18th July	(T H P, 18th July 1904)
28	Do	S F Longnead	14th Mar	
29	Do	J C Haslett	20th Jan	On T H P
30	Do	H E R James	7th Mar	
31	Do	W B Day	30th Sept	On T H P
32	Do	B L Mills	17th June	
33	Major	G Paymond	27th June	
34	Do	A E C Watson	5th Sept	On T H P
35	Do	H S Peeke	18th Oct	On T H P (Full ray 21st Nov ember 1908)
36	Do	L A Mitcho	21st Aug	
37	Captain	J I W Morris	8th Feb	
38	Do	L J C Hearn	27th June	(T H P 27th June 1903)
39	Do	J F C Mackenzie	28th Oct	
40	Do	H J Macgrigor	16th Dec	
41	Lieut	A C Vidal	12th Jan	On T H P
42	Do	T F Lumb	29th July	

C — Promotions

No	Old Rank	Name	New Rank	Date	REMARKS
1	Colonel	G D Bourke, C B	S G	9th Mar	1 Edge R
2	Do	J G Dorman	Do	11th April	2 Charlton, R
3	Do	A T Sloggett, C M G	Do	13th May	1 Fawcett, R
4	Do	W W Kenny	Do	8th June	1 Quill, R
5	Do	P M Ellis	Do	31st Dec	2 Slaughter, R
6	Lt Col	F B Maclean	Colonel	6th Feb	2 Williamson, R
7	Do	D O'Sullivan	Do	17th Feb.	2 Chester, R.
8	Do	H W Murray	Do	9th Mar	1 Bourke, P

V—R A M C—(Concl'd)

C—Promotions—(Concl'd)

No	Old Rank	Name	New Rank	Date	REMARKS
9	Lt Col	M W Kerin	Colonel	29th Mar	v Macnamara, R
10	Do	A Petetkin	Do	11th April	i Dorman, P
11	Supy Col	W Babbie V C, C M G	Do	13th May	Absorbed, v Sloggett, P
12	Brevet	Col Sn D Bruce C B	Do	17th May	v Leake, R
13	Lt Col	L E Anderson	Do	5th June	i Martin, D
14	Do	H G Hathway	Do	8th June	i Kenny, P
15	Do	J R Dodd	Do	9th Sept	i Morris, R
16	Do	W G Bedford, C W G	Do	19th Sept	i Webb R
17	Do	R Jennings	Do	31st Dec	i Ellis P
18	Major	O R A Juhw, C M G	Bt Lt Col		for Mohmand expedition

D—Honours

No	Rank	Name	Honour	Date	REMARKS
1	S G	E D Madden	G S Pen sion		(Retired)
2	Do	R H Quill	Red Eagle	March	(II Class)
3	Colonel	Johnston, C B	L L D Ab	2nd April	(Retired)
4	Do	D Bruce, C B	L L D Glasgow	22nd April	
5	Do	D Bruce, C B	Knight		
6	Lt Col	R S F Hen derson	Red Eagle	March	(II Class)
7	Do	G D Hunter	Medjidieh		(II Class)
8	Major	G D Browning	Osmanieh		(IV Class)
9	Captain	J F Briken ridge	Medjidieh	March	(IV Class)

E—Deaths of Retired Officers

No	Rank	Name	Date	REMARKS
1	S G	T W Fox	28th Mar	Rochester
2	Do	Sir J A Hanbury, K C B	2nd June	Bournemouth
3	D I G	A Macleyn	10th June	
4	Colonel	J H Moore	24th Mar	Wellington, Somerset
5	Do	R Batho	3rd April	Sydenham
6	Brig Surg	I H Finnimore	23rd Jan	
7	Do	E H Lloyd	3rd May	Chatham
8	Do	W S Oliver	27th April	Farnborough Park
9	Do	H R L Verle	22nd May	Reading
10	Do	T B O'Brien	19th May	London
11	Do	G B Sanders	24th April	London
12	Do	M G Jones	6th Aug	London
13	Do	C H Browne	2nd July	Hove
14	Sur, Lt Col	J N Stock	17th June	Cheltenham
15	Lt Col	W Alexander	11th Aug	Portobello
16	Surgeon Major	E McCarthy	26th Dec 1907	Southsea
17	Do	C V Cuy	28th Dec 1907	Leamington (Cold stream Guards)
18	Do	T R Mould	22nd Feb	Boscombe
19	Do	E O'Connell	17th Jan	Netley Abbey
20	Do	J J Henry	Dec	Cheltenham
21	Do	G P M Wood ward	1st Oct	Sydney, N S W
22	Asst Surg	W Pirrie	March	Bournemouth
23	Do	J Taylor	10th Oct	Titchhurst

UNITED PROVINCES I M S DINNER

THE U P Indian Medical Service Dinner was held last night at the Chutter Muzal and was an immensely successful function. The Hon'ble Colonel R D Murray, Inspector General of Civil Hospitals, presided and Lieutenant Colonel Sweeney, Civil Surgeon of Benares, acted as Vice President. There was a large attendance. The table was beautifully decorated with flowers and ribbons in the I M S colours.

Colonel Murray proposed the toasts of the King Emperor and the Service and Colonel Sweeney proposed the health of Colonel and Mrs Murray in felicitous terms, to which Colonel Murray replied. The Band of the 21st Punjab played selections during the Dinner and afterwards the gentlemen joined the ladies at Mrs Murray's reception in the Library, which was beautifully decorated for the occasion. In addition to the music of the Band there was a concert in which Miss Crosthwaite, Miss Crocker, Mr Gibb and Mr Hoare took part. Mrs Hoare playing the accompaniments. With such talent it is needless to say that the party was a great success and the guests were afforded a musical treat of the highest order. Many beautiful dresses were worn by the ladies. The I M S ladies' dinner took place at Mr Anderson's prior to the reception 20 guests being present.

The following members of the Service were present—The Hon'ble Colonel R D Murray, Lieutenant Colonels T H Sweeney, J Anderson, C Mainford, G H Baker, S H Henderson, J Moorwood, W Vost, W E Woodwright, J R Close, Majors J Chaytor White, J M Crawford, H Austen Smith, W Young, C B Prill, J C Robertson, H J Walton, R F Baud, T Hunter, G Hutcheson, W S Wilmore, J N Walker, R Steen, J D Graham, C A Sprawson, W Lapsley, H W Illus, W H Boalch, Captains G A Soltou, C H Reinhold and W D Wright.

Guests—Surgeon General Ellis, Lieutenant Colonel Le Quesne, v c Major Jay Gould, Captain Betts, Mr Morrison, Lieutenant Colonel Cunningham, Lieutenant Colonel Edwards, C M G.

The following is the Programme of music at the Reception—Overture—Band 74th Punjabis, Song—"Oh! Gathe Roses"—Liza Lehman, Mr Gibb, Song—"I'll Sing Thee Songs of Araby," Mr Hoare, Song—Miss Crocker Song—"Thru Song" from "Mignon," Thomas, Miss Crosthwaite, Song—"King Charles," Mr Hoare, Duet "Lil Deschido"—Saint Saens, Mrs Crosthwaite and Mrs Crocker.

The Hon'ble Colonel Murray spoke as follows—

GENTLEMEN,

I rise to propose the toast of "Prosperity to the Indian Medical Service," and let me begin by expressing the great pleasure it affords me to see so many of you here this evening and to welcome my old friend Surgeon General Ellis of the sister service and the other guests who have honoured us with their presence on this occasion. I am deeply grieved, however, to say that there is one vacant chair to night due to the sad and sudden death of Major Orr at Bahrach, a few evenings ago while apparently in the best of health and spirits. He had intended coming to the dinner to night, and going down to Calcutta shortly afterwards to be invested by the Viceroy with the C I E recently conferred on him by Government. The occurrence is under the circumstances expressly tragic and has cast a gloom over the whole service in these provinces. In him his state has lost an able officer and the service one of its most popular and valued members. Our hearts go out in deepest sympathy towards his widow and children in their sad bereavement.

Before going further I would wish to express our acknowledgments to Major Prall for undertaking the onerous duties of Honorary Secretary to the Dinner Committee, and the excellence of the arrangements to night testify to his success which has rewarded his labours.

Gentlemen, our I M S Dinner has, I believe, come to stay and will, I trust, be an annual function. My proposal to have a dinner three years ago was received with acclamation for it gives our officers an opportunity of becoming acquainted with each other, of exchanging ideas and forming friendships. Such a meeting was much wanted for, I found to my surprise on the occasions of our first dinner that there were a number of men who had never met before and required formal introductions to each other. The dinner encourages camaraderie and esprit de corps and does good in other ways. It helps not only to keep us in evidence with the other public services, but to emphasise our existence as an important element in the body politic.

As regards the service itself I may safely say that it has never been more prosperous and never had more distinguished officers on its rolls. Whether on the active or retired lists than at the present time. In every branch of medical science we possess men with the highest qualifications. India offers a fine field for zealous and capable men, and it has been the training ground of several, now retired, who not only made their mark out here but have risen to the highest eminence at home. One officer in particular, Lieutenant Colonel Freyer, is acknowledged to be the leader

in one special branch of Surgery in Great Britain, if not in Europe, and I am credibly informed that he enjoys one of the most lucrative practices in London. I am proud to say that Colonel Freyer is an old U. P. man.

The service has been much to the front in recent years in the department of scientific research, and we possess a band of outstanding workers, whose names are famous all over the world. The discoveries of Major Ronald Ross have revolutionized our ideas on the subject of Malaria and his investigations have led to very important and far-reaching results in every quarter of the globe. He has rendered noble service in the cause of humanity, and his name will go down to posterity as one of the greatest benefactors of mankind.

Such men and such achievements confer distinction on the grand old service to them and we have the honour to belong and stamp it as one of the finest and most progressive medical services in the world.

Gentlemen, this is the last occasion on which I shall have the honour of presiding at an annual gathering, and I shall take my departure from among you with very mixed feelings. I thank you, one and all, for your loyalty and co-operation since coming to these provinces as your Inspector General. Our relations have been most harmonious from first to last, and this is a matter of the greatest satisfaction to all concerned.

Gentlemen, before sitting down, I would ask you to join with me in wishing goodspeed to one of our departing veterans, Lieut. Col. Sweeny, whom I am glad to see here to-night in the fulness of life and vigour. Let us wish him many years of usefulness, prosperity and happiness in his retirement. I do not believe that a man of his energy and activity will care to remain idle, and I quite expect to hear of his exchanging the classic slums of Benares for the fashionable purlieus of Harley Street.

Gentlemen, the continued prosperity of the Indian Medical Service.

In his despatch of December 11th, 1908 the Secretary of State says he has decided that the time has now arrived when no further increase of the civil side of the service can be allowed and when a strong effort should be made to reduce it by gradually extending the employment of Civil Medical practitioners recruited in India. The Government of India is instructed to consider what appointments can best be fitted in this way. In future no appointment is to be made in succession which would involve an addition to the cadre of the Indian Medical Service.

SURGEON GENERAL JOHN EDWARD TUSON, Bengal Medical Service, retired, died at Eastbourne, on 24th December 1908, aged 79. He was born on 3rd July 1829. Educated at St. George's and Middlesex Hospitals, and took the diploma of M. R. C. S. in 1851, subsequently taking the F. R. C. S., England, in 1863, also the M. D., of St. Andrews, in 1862. He entered the I. M. S., as Assistant Surgeon, on 17th June 1853, became Surgeon on 15th June 1864, Surgeon Major on 17th June 1873, and Deputy Surgeon General on 20th August 1879, retiring on 8th September 1884. Dr. Tuson saw a good deal of war service, having served in the Mianzan expedition of 1855, and in the Mahsud Waziri expedition of 1860 as well as in the Mutiny, when he was present at the disarming of the population of Multan at the operations in Rohilkhand, and at the action of Nagina. In all three he was mentioned in despatches, and in the mutiny also received the thanks of the Commander in Chief and obtained the Practice Medal with Clasp and the Mutiny Medal. He was the author of several pamphlets: "Measures adopted at Umballa to stamp out Small pox, 1870," "On a new bullet extractor and exploder invented by the author," "The Hypodermic injection of Neutral Sulphate of Quinine in Intermittent Fever," and "Observation on the efficacy of burning Sulphur Fires in Epidemics of Cholera, (1883)." Some of our older readers will remember him as Deputy Surgeon General of the Presidency Division stationed in Calcutta. Another still older veteran of the I. M. S., Surgeon General G. H. Ray, had also died at Eastbourne, only twelve days earlier, on 12th December.

BRIGADE SURGEON EYANUEL BONAVIA, Bengal Medical Service, retired, died at Worthing on 14th November 1908. Born on 16th July 1833, he was educated at the Universities of Malta and Edinburgh, became M. R. C. S. in 1857, and also took the degree of M. D. at Malta. He entered the I. M. S., as Assistant Surgeon, on 4th August 1857, became Surgeon on 4th August 1869, Surgeon Major on 1st July 1873, and Brigade Surgeon on 17th January 1885, retiring on 26th April 1888. He served in the Indian Mutiny, being present with the Field Hospital throughout the operations leading up to the final capture of Lucknow in March 1858, and subsequently served with the Oudh Military Police during the Tians Gogra Campaign in December 1858 (Medal and Clasp). Dr. Bonavia spent most of his service in India as a Civil Surgeon in the North West, now the United Provinces, but was best known

for his botanical knowledge and writings. He was the author of "The Future of the Date Palm in India," 1885, "The Cultivated Oranges and Lemons of India and Ceylon," 2 Vols., 1890, "Studies in the Evolution of Animals," 1895, and "The Flora of the Assyrian Movements," 1894.

SURGEON MAJOR THOMAS MILLER, Bombay Medical Service, retired, died on 7th November 1908. Born on 8th January 1831, he was educated at Edinburgh, where he took the degree of M. D., and the diploma of L. R. C. S. in 1853, and entered the I. M. S., as Assistant Surgeon, on 19th November 1856. He became Surgeon on 19th November 1868, Surgeon Major on 1st July 1873, and retired on 3rd July 1882. He served in the Indian Mutiny, and took part in the Central Indian Campaign, being present at the capture of Ratghur, and also in the siege and storm of Jhansi, in which he was severely wounded.

MAJOR WALTER HOOD ORR, C. I. E., I. M. S. Civil Surgeon of Bahraich, died suddenly of heart failure, in the evening of 28th January 1909, at Bahraich. Major Orr was born on 11th December 1867, educated at St. Bartholomew's Hospital, took the diplomas of M. R. C. S. and L. R. C. P., London, in 1892, and entered the Bengal Medical Service as Surgeon Lieutenant on 30th January 1893, becoming Surgeon Captain on 30th January 1896, and Major on 30th January 1905. The Army List assigns him no war service. He was decorated with the C. I. E. so recently as 1st January 1909.

CAPTAIN CHARLES HOPE SEPTIUMS LINCOLN, I. M. S., died in St. George's Hospital, Bombay, on 5th January 1909. He was born on 12th December 1871, educated at Madras Medical College and Guy's Hospital, took the diplomas of L. R. C. P., London, and M. R. C. S., in 1895, and entered the I. M. S., as Lieutenant, on 28th January 1897, forming one of the first batch gazetted to the junior service. At the time of his death he was Civil Surgeon of Dhulia. The Army List assigns him no war service.

EXAMINATION OF LIEUTENANTS ON PROBATION, ROYAL ARMY MEDICAL CORPS AND INDIAN MEDICAL SERVICE

Military law—(Time allowed, two hours). The Manual of Military Law and the King's Regulations may be used.

[N.B.—Answers should be supported by reference to the Army Act, Rules of Procedure or King's Regulations, but a mere reference, unless it be specially asked for, will not be credited as an answer.]

(Officers of the Royal Army Medical Corps to answer the first five questions only, officers of the Indian Medical Service to answer any three of the first five questions, and to answer Questions 6 and 7.)

(1) What limit is imposed to the infliction of fines by way of punishment?

(2) A soldier is absent without leave for four hours, and another man has to take his place on duty. To what punishment is he liable, assuming the Commanding Officer deals with him?

(3) By whom is the Prosecutor appointed, and what qualifications should he possess? Can he be sworn by the Court, or objected to by the accused?

(4) A gaoler promises a prisoner that if he will confess his crime he will be allowed to see his family. Is the confession thus made admissible in evidence? Give your reasons.

(5) What is the meaning of "Military Custody"? Can a person while in military custody be ordered to perform any military duty?

For Indian Medical Service Officers only

(Indian Articles of War and Army Regulations, India, Vol. II without books.)

(6) Mention the different kinds of Courts Martial which may be convened under the Indian Army Regulations, and give the composition of each.

(7) Give the definition of a "Corps" (Interior Economy, including Field Sanitation (Time allowed—two hours).)

[Officers of the Royal Army Medical Corps to answer first five questions only, officers of the Indian Medical Service to answer any two of the first four questions, and to answer Questions 5, 6 and 7.]

(1) What are the terms of Service for which a recruit of the Royal Army Medical Corps may now enlist? Should he wish to remain indefinitely in the Service, what is the mode of procedure?

(2) What is the soldier's daily ration? Does it vary, and how is it supplemented?

(3) When is a soldier liable to forfeit his regimental pay?

(4) What are the qualifications that a soldier must possess in order that he may be allowed to marry "on the strength"? What advantages has a soldier who has thus married over a man who has married without leave?

(5) Discuss the relative merits of attempting to purify water for troops on field service by means of (a) filters, (b) heat. Describe, in detail, the regulation filter tank, and indicate the essentials to be observed in maintaining this equipment in an efficient state.

For Indian Medical Service Officers only
(Army Regulations, India, Vol V I)

(6) Describe, in detail, the composition of the Indian Sub ordinate Medical Department.

(7) What is meant by the term O C, and what punishment may be awarded by him to persons subject to the I A W, excepting warrant officers and non commissioned officers?

THE following changes are sanctioned among Agency Surgeons under the Foreign Department —

Consequent on the replacement at the disposal of His Excellency the Commander in Chief in India of the services of Lieutenant-Colonel A M Crofts, C I E, Indian Medical Service (Bengal), an Agency Surgeon of the 1st class, and with effect from the 15th October 1908

Lieutenant Colonel G W P Denny, Indian Medical Service (Bengal), an Agency Surgeon of the 1st class is confirmed as Agency Surgeon and Administrative Medical Officer in the North West Frontier Province.

Lieutenant Colonel H R Woolbeir, Indian Medical Service (Bengal), an Agency Surgeon of the 2nd class, to be an Agency Surgeon of the 1st class.

THE services of Captain W O'S Murphy, M B, I M S, are placed permanently at the disposal of the Government of Bombay.

THE services of Captain W R J Scroggie, I M S, are placed permanently at the disposal of the Government of Madras.

THE services of Captain N W Mackintosh, M B, I M S, are placed temporarily at the disposal of the Government of Bengal.

THE services of Captain M R C MacWatters, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India.

COLONEL H McKAY, I M S, C B, C I E, has been transferred to Burma as P M O.

MAJOR R J BLACKHAM, R A M C, is appointed Sanitary Officer, 1st (Peshawar) Division, vice Captain H A Davidson, R A M C, vacating.

MAJOR J C WEIR, R A M C, is appointed Sanitary Officer 8th (Lucknow) Division, vice Major J C Morgan, R A M C, vacating.

HIS Excellency the Governor in Council is pleased to appoint Captain W O'S Murphy, M B, I M S, to be Deputy Sanitary Commissioner, Sind Registration District.

MAJORS H BUPNETT, M B, C M, I M S, has been allowed by His Majesty's Secretary of State for India to return to duty.

MAJOR J JACKSON, I M S, has succeeded Mr H N Alexander as Inspector General of Prisons, Bombay Presidency.

LIEUTENANT COLONEL J L POYNTER, I M S, has been granted an extension of furlough (on medical certificate) for 6 months in addition to the combined leave already granted.

MAJOR CRAWFORD, I M S, is transferred from Gorakhpur to Benares as Civil Surgeon.

CAPTAIN STEEN, I M S, a Civil Surgeon, U P, has been posted to plague duty, U P.

CAPTAIN F S C THOMPSON, M D, I M S, has joined the Bengal Jail Department and is posted to act as Superintendent of the Midnapur Central Jail.

LIEUTENANT G E MALCOLMSON, M D, I M S, has joined the Bombay Jail Department.

CAPTAIN C I BRIERLEY, I M S, an Agency Surgeon, was placed on special duty in Baluchistan, with effect from 29th October 1908.

ON return from furlough Captain W Lethbridge, I M S, is posted as Civil Surgeon, Warr from 26th November.

COLONEL A M CROFTS' tenure of appointment is dated from 30th October 1908.

LIEUTENANT J F BOYD, I M S, is promoted Captain with effect from 1st October 1908.

LIEUTENANT COLONEL F W GEE, I M S, is granted a year's furlough out of India and Major J J Gould, I M S, officiates as Staff Officer, Divisional Medical Mobilisation Stores, 8th Lucknow Division, vice Lieutenant Colonel Gee.

LIEUTENANT H HIGHAM, I M S, joins Bombay for employment in the department of the Chemical Examiner.

THE Commander in Chief in India is pleased to make the following appointments —

Divisional Staff —

Colonel C F Willis, I M S, to be Principal Medical Officer, 5th (Mhow) Division, vice Colonel W G H Henderson, I M S, retired.

Brigade Staff —

Colonel M W Keim, British Service, to be Principal Medical Officer, Bareilly and Garhwal Brigades vice Colonel O E P Lloyd, I C, I H S, British Service, transferred.

Colonel W A Corkery, I M S, to be Principal Medical Officer Karachi Brigade, vice Colonel H B Briggs, I M S, retired.

COLONEL R W S LYONS, I M S, was appointed P M O, Abbottabad Brigade, vice Colonel J McCloghly, I M S, resigned.

CAPTAIN BA KET, I M S, was appointed to the Civil Medical charge of Pegu District, vice Capt G H Stewart, I M S, gone on leave.

MAJOR M DICK, I M S, a Civil Surgeon, Burma, was granted study leave from 1st January to 31st October 1908.

THE two years' combined leave of Major C P Harrison, I M S, will end on 9th June 1909.

CAPTAIN A CHALMERS, I M S, was granted combined leave for 11 months and 15 days and study leave for 8 months from 7th January 1909.

CAPTAIN J MCC A MACMILLAN, I M S M B (Edin), L R C P, M R C S, and Captain W H Hamilton, M R C S, L R C P, have passed the examination for F R C S (England).

CAPTAIN H M MACKENZIE, I M S, is appointed temporarily Professor of Pathology, Lahore.

CAPTAIN H HALLIDAY, I M S, is appointed to act as Civil Surgeon of Kangra.

LIEUTENANT W J FRASER, I M S, M D, has passed the examination for F R C S (Edin).

CAPTAIN G I DAVIS, I M S, was granted four months' sick leave out of India under rules of 1886 from 18th November. His seventh year of pension service commenced on 26th July 1908.

ON the completion of his work on blackwater fever Captain Christophers was appointed temporarily Assistant to the Director of the Central Research Institute, Kasauli. We understand that various associations in Assam have approached Government for an investigation of blackwater fever in Assam and have asked for the services of Captain Christophers and Dr Bentley.

THE services of Captain T C Rutherford, M B, were replaced at the disposal of the Government of India in the E B & A Gazette of January 20th.

THE Commander in Chief in India is pleased to make the following appointments —

Divisional Staff —

Colonel P M Ellis, British Service, to be Principal Medical Officer, 8th (Lucknow) Division, vice Surgeon General W B, Slaughter, British Service, retired.

Colonel D O'Sullivan, British Service, to be Principal Medical Officer, 4th (Quetta) Division, *vice* Colonel P M Ellis, British Service, transferred

Colonel C H Bertson, C.B., I.M.S., to be Principal Medical Officer, 1st (Peshawar) Division, *vice* Colonel H R Whiteford, British Service, vacated

Brigade Staff —

Colonel H St C Caruthers, I.M.S., to be Principal Medical Officer, Kohat Brigade, *vice* Colonel C H Bertson, C.B., I.M.S., transferred

THE services of MAJOR F H WATLING, I.M.S., officiating Civil Surgeon, C.P., are placed at the disposal of the Home Department

THE following I.M.S. officers attended the London School of Tropical Medicine, 28th session —

Captain A Spitteler
 Captain H C Brown
 Captain H E Strangier Leathes
 Captain C H Watson
 Captain L T R Hutchinson
 Captain H R Dutton
 Major J H Macdonald
 Lieutenant Colonel P Hehir

Of 45 students attending the Course 26 went up for the examination. All the I.M.S. officers who went up passed the examination, three "with distinction," *viz.*, Captains Dutton, Strangier Leathes and H C Brown

DR W C HOSSACK, M.D., of Calcutta, also passed the examination of the London School of Tropical Medicine

CAPTAIN F P CONNOR, I.M.S., Officiating Resident Surgeon, Medical College Hospital, acted as Professor of Ophthalmic Surgery, Medical College, Calcutta, and Ophthalmic Surgeon, College Hospital, in addition to his own duties, from the afternoon of the 5th to the forenoon of the 10th November 1908, during the absence, on leave, of Lieutenant Colonel F P Maynard, I.M.S.

CAPTAIN D MUNRO, I.M.S., on special duty in connection with the enquiry into the prevalence of malaria in Bilbhum, is appointed temporarily to act as a Civil Surgeon and is posted to Seiampoie with effect from the 18th December 1908

CAPTAIN H B FOSTER, I.M.S. Officiating Civil Surgeon, Seiampoie, is appointed substantive *pro tempore* to be 2nd Surgeon, Presidency General Hospital, Calcutta, *vice* Captain J G P Murray, I.M.S., with effect from the forenoon of the 21st December 1908

CAPTAIN H EMSLIE SMITH, I.M.S., on return from Burma acted as Assistant Teacher of Chemistry at the Medical College, Calcutta, from the afternoon of the 12th November to the afternoon of the 15th December 1908

CAPTAIN M H THORNTON, I.M.S., reported his departure from India on leave on the 5th December 1908

CAPTAIN W V COPPINGER, I.M.S., reported his departure from India, on leave, on the 2nd January 1909

CAPTAIN C A GOURLAY, I.M.S., was on study leave from 27th April to 27th August 1908

CAPTAIN W TARR, I.M.S., Officiating Civil Surgeon, Cachar, is granted privilege leave for three months, under Article 260 of the Civil Service Regulations, combined with study leave for five months under Rule 6 of the Study Leave Rules for Officers of the Indian Medical Service and leave out of India for four months under Article 353 of the Army Regulations, India, Volume I, with effect from the 9th December 1908

CAPTAIN HUBERT INNES, I.M.S., M.D. (Lond.), is posted to Cachar as Civil Surgeon, and Lieut. Stevenson, I.M.S., holds the Civil Medical charge of Manipur

LIEUTENANT COLONEL H R WOOLBERT, Indian Medical Service (Pengl), an Agency Surgeon of the 1st class is posted, on return from furlough, as Civil Surgeon, Ajmer, with effect from the 23rd December 1908

MAJOR C H BEDFORD, I.M.S., Director, Central Excise Laboratory, is granted privilege leave for three months and furlough for six months in continuation, with effect from the 10th of February 1909 or the subsequent date from which he may avail himself of the leave,

MR R L JENKS, Senior Assistant in the Central Excise Laboratory, is appointed to act as Director, Central Excise Laboratory, during the absence on leave of Major C H Bedford, I.M.S., or until further orders

WE publish as a Supplement to this issue an account of the Bombay Medical Congress, Feb. 22–26, 1909

THERAPEUTIC NOTES

OUR attention has been drawn to a preparation entitled CARYOSOL, introduced by Pearson's Antiseptic Co., Ltd., of which the following description is given —

"In the treatment of affections of the respiratory organs as well as in tuberculous diseases creosote, guaiacol and gurethol have already been employed for a considerable time, but they all have the disadvantage that they irritate the stomach, although their action is not so caustic as that of either carbolic acid, or the cresols, or the so-called hylenols. In the endeavour to obtain antiseptics which should be less irritant in their effects, guaiacol and creosote carbonate and potassium guaiacol sulphate were first introduced, and the combinations of guaiacol with albumin were subsequently employed

In addition to their well known nutritive properties, experience has shown that carbolic acid, the cresols, creosote, and guaiacol may also produce constitutional toxic effects, and for these reasons they are generally regarded as unsafe for internal administration. It is therefore much to be desired that the medical profession should have at its disposal an antiseptic preparation altogether free from toxic or irritant properties

After prolonged research we have succeeded in making an antiseptic produced from eugenol, one of the chief constituents of oleum caryophylli. Eugenol is not only a more powerful antiseptic than guaiacol but has the further recommendation that it possesses none of the poisonous character of guaiacol. Although eugenol enters very largely into the composition of oleum caryophylli, it has not as yet received attention from the medical faculty, but it is used by dentists to a certain extent as an application to carious teeth, and as an aromatic."

The dose is given as forty grains a day in four portions, after each meal in milk water or in capsules. We are requested to state that any hospital in India or medical man writing to Messrs Tothill Sharp & Co., Bombay, will be supplied with sample and explanatory pamphlet free of charge

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co., Calcutta

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BOOKS, REPORTS, &c, RECEIVED —

Sanitary Commissioner's Report India
 Green & Co's Med. Cyclopaedia, Vol. A
 Hershells Lactic Acid & Diet Bailliere, Tindall & Cox
 Boeller's Rat Problem J. Bale, Sons and Danielsson
 Heron's Operation on the Ear Bailliere Tindall & Cox
 Lamb's Guide to Throat, &c Bailliere Tindall & Cox
 Stewart & Young's Practical Gynaecology Oliver & Boyd
 Allbutt's System, Vol. IV Pt. 2 Macmillan & Co
 Report of Soc. for Children's Diseases, Vol. VII J & A Churchill

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Capt A C Gill, I.M.S., Lahore Capt J W Rail, I.M.S., Purnea Dr Gillman, Sambalpur Capt F P Mackie, I.M.S., England Capt McCarrison, I.M.S., London, Capt Prall, I.M.S., Lucknow Major J Mulvany, I.M.S., Calcutta Major Ewens, I.M.S., Lahore, Capt R. McWalters, I.M.S., Lt Col Jennings, I.M.S., Bombay

Original Articles.

TUBERCULOSIS AMONGST EUROPEANS IN CALCUTTA *

By H W PILGRIM,

LIEUT COLONEL, I M S,

Superintendent, General Hospital, Calcutta

GENTLEMEN,—I propose this evening to put before you the statistics relating to tuberculous cases admitted into the General Hospital during the last eight years, from 1901 to 1908. I must say at the outset that after looking into these statistics, and the case reports on which they are based, that while satisfied with their general accuracy so far as they go, I am afraid that a fair number of cases are not included in this list, being returned under some other heading, this is largely due to our having no Registrar, and to difficulties in diagnosis in a certain number of cases, but, at all events, there is no exaggeration in these figures, and such as they are, I offer them to you for your consideration, and I have had them scheduled, so that you may readily follow any reference that I may make.

Statistics concerning cases of Tuberculosis treated in the General Hospital during the last eight years 1901 to 1908

I

Total admission from all kinds of diseases during the eight years = 24,247

Total cases of tuberculosis during same period = 980

From this we find—

Out of every 100 cases admitted 4.04 were tuberculous
 " " 100 men " 4.17 " "
 " " 100 women " 6.05 " "
 " " 100 children " 1.15 " "
 (up to 10 years)

II

AGE INCIDENCE

SEX	5 years and under	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	Over 50
Male	8	11	22	76	120	140	82	57	71	41	64
Female	10	14	47	48	54	49	19	17	8	5	17

III

OCCUPATION ABOVE THE AGE OF 15

Out of 651 males suffering from tuberculosis

160 belonged to the loafer class.

95 were seamen

111 were engaged in clerical pursuits

61 were employed on railways

42 were engineers and mechanics

21 were employed in printing presses

The remaining 161 were divided up without any marked incidence amongst all the many other miscellaneous occupations

IV

SITE OF PRIMARY INFECTION

Lungs	847	Peritoneum	5
Pleura	27	Intestines	3
Lymphatic glands	52	Skin tubercle	3
Joints	19	Chronic abscesses	2
Bones	7	Meninges	3
Testes	12		

Unfortunately I could not get the notes and figures of the very interesting papers by Col Harris and Major Rogers, to compare with my own figures, but, so far as my memory goes, the features of pulmonary tuberculosis referred to by Col Harris are very much the same as those noted to have occurred in the General Hospital Series. In fact, tuberculosis is singularly true to its well-recognised history and development in whatever country its features are studied. I therefore do not propose to trouble you with its clinical aspects and proceed to deal with its origin, prevalence and mode of infection with special reference to India and Lower Bengal in particular, and afterwards as to how it should be dealt with.

ORIGIN AND PREVALENCE

Here in Calcutta tuberculosis of all kinds is rampant, but I think, in an unusual degree the lungs and pleura bear the brunt of this disease. I will refer to it as it occurs amongst Indians and then Europeans and Eurasians. I should say, the special dampness of the atmosphere, unsuitable clothing, extreme overcrowding, even in good habitations, where several connected families often live together and absence of sanitary arrangements, reduces the resistance of most Indians to the invasion of this disease—the

same in a lesser degree holds good for many Eurasians and very poor Europeans, but the alarming feature is the absence of cleanly arrangements in the houses of Indians, even in many good ones—I mean that the houses are not kept clean nor comparatively free of dust, and the people do not realise the danger arising from expectoration, everywhere left to dry and disseminate. I have on several occasions seen sputum from tubercular cases on the floor, on the walls, and anywhere, and nothing that I

* Being a paper read before the Medical Section of the Asiatic Society of Bengal

could say brought home to the people, usually well educated and respectable, the danger of this custom and many of you must have seen the same. It follows from this that there are large increasing numbers of people infected with tuberculosis who are always coughing, speaking, sending out fine sprays from their mouths, and expectorating promiscuously, so that tubercle bacilli exist broadcast everywhere, and our chief protection is our own tissue resistance. In this connection I may say in passing that, in my opinion, perhaps too much stress has been laid on the factor of hereditary predisposition. I have been struck with the large number of cases of phthisis that have occurred amongst Europeans in Calcutta, where no family history of predisposition could be obtained. It seems to me that, given an opportunity of receiving infection in sufficient amount, and of sufficient virulence, a clean family tree affords but poor shelter; you have to depend really on the resistance of your own tissues and blood—and, on the other hand, one sees many that are hereditarily predisposed, who by attention to health and other measures, escape invasion even under inviting conditions.

The wide prevalence of facilities for infection is, of course, admitted by all, but how in India does it most frequently get access to our system, and what is the most frequent path of infection? Dealing with this involves me in the thorny and far from settled question of a human and bovine origin. At the last meeting my friend Major Rogers in his most interesting and suggestive remarks on the cases of tuberculosis he had tabulated, differentiated, as far as I remember, the site infection most usually involved according as its origin was bovine or human. Major Rogers spoke, it appeared to me, as if these were settled matters, but, with every respect for the various reports of the last Commission investigating this subject and other writings, I cannot on the evidence before me regard this quite yet as a settled matter. That bovine and human tuberculosis are intercommunicable is clearly proved, but the extent to which this occurs is still uncertain, as are also the vagaries and modifications of the tubercle bacillus under varying circumstances. Moreover, the opinion of such an accurate authority as Kitasato has to be considered. From his records it appears that in Japan deaths from tuberculosis are in about the same ratio to other causes of death as exist in Europe. Intestinal tuberculosis is also shown to be equally as prevalent, but in Japan cow's milk for feeding children is practically unknown, for, when a mother cannot suckle her own child, a foster mother is secured. Kitasato goes on further to state in his report that native cattle are unknown to suffer from tuberculosis, and in any instance where it has been discovered, there has usually been traced a cross between the native and imported beast. The consumption of milk in Japan is particularly small, and

works out, according to Kitasato, at about 2½ teaspoonfuls per day per head, so that in Japan, at all events, where tuberculosis is equally prevalent, a bovine origin must be very rare.

Here in India it is impossible to get proper tables showing the incidence of tuberculosis amongst cattle generally, and, of course, there are actually no figures dealing with the probable percentage of tuberculous udders which alone appear to be able to yield milk containing tubercle bacilli, but as far as I can find out by inquiry, tuberculosis amongst cows in India does not appear to be nearly so prevalent as in Europe, but I say this with all reserve, as I have no accurate or reliable information.

In whatever way this matter may ultimately be settled, it is certain that facilities for infection from human sources are much more marked amongst the people of this country than in Europe, and that this is far and away the most frequent source of infection in India and therefore the more closely to be studied and dealt with.

What is the most frequent path of infection in this country?

As far as I remember, but I will be corrected, if necessary, the figures from the Medical College impressed me that there was a comparatively smaller incidence of tuberculosis amongst the systems, other than the respiratory, than is seen in Europe, and in these remarks I shall therefore refer chiefly to lungs and pleura as being predominantly important.

Here in India adenoids and tonsillar enlargements are very common as everyone knows. I can give as an impression (I am sorry I have no figures) based on a good deal of experience that perhaps amongst Europeans and Eurasians they are even more common than in Europe, amongst Indians I have had much less actual experience, but even in their case my inquiries lead to the conclusion that they are widely prevalent. It is well known that in many sections of adenoids and tonsils tubercle bacilli have been found in the central parts—that is one fact, another fact, which, I think, you will all agree with, is that enlargement of the lymphatic glands are specially common in India, quite exclusive of those from venereal causes. We are frequently seeing climatic buboes whatever they may stand for, and, in short, glands are frequently found exercising their right to enlarge and no doubt often protect us under varying circumstances, and I think the coincidence of these abnormal developments in the upper respiratory tract and frequent glandular involvement in the upper third of the body, suggests that the latter is in this country a very common channel of infection, especially as I have observed so many cases of phthisis or pleurisy to supervene later in cases where enlarged glands had been noted at some previous period. Another frequent method must, of course, be very direct inhalation into the lungs,

and finally, other organs including the lungs may be affected by swallowing infected material which may pass through the alimentary tract at any point and be transferred to some other organ without necessarily producing infection at the point of passage. I have dwelt rather on the possibilities of infection through the upper respiratory tract, with a view to emphasising on practitioners the need for dealing with adenoids and tonsils (which they can do themselves) when sufficiently enlarged to lead to mouth breathing, which, apart from other drawbacks, must considerably increase the possibility of infection by tubercle, as of course the mechanism of nose breathing confers considerable protection.

Now, gentlemen, how should we deal with tuberculosis, both as to prevention, and when we are face to face with it in individual cases.

As to prevention, by education of the community both by lectures and widely circulated tracts briefly dealing with the important points, and by adopting sanitary precautions, and especially by enforcing rigorous measures to greatly restrict promiscuous expectoration. I am glad to see that Government has already made a step in this direction by posting circulars in public buildings, but it should later on be extended, and police intervention secured.

How should it be dealt with when we have to treat it? I purposely avoid all reference to drugs, as I firmly believe the disease and its complications best dealt with by putting people under favourable conditions to make natural methods effective. I refer to treatment in a sanatorium. Before making a special reference to the need for sanatoria out here, I would like, in passing, just to refer to another point, in the hope that it may evoke an expression of opinion from others. The need for early diagnosis and treatment is obvious and all-important, quite a fair number of doubtful cases present themselves which certainly justify grave suspicion. How are we to settle the doubt? Should we do so by means of the opsonic index, or by the use of tuberculin? Opsonins are new, and fashionable and of fascinating interest, and not to be spoken lightly of, but I am afraid from what I have read they have not so far quite fulfilled their promise, and in any case they require skilled bacteriologists, and are apt to confuse one a bit, on various occasions, for instance, in many cases of consumption where the opsonic index was low before treatment, even after treatment for some months in sanatoria, when all physical signs of active disease have disappeared, when patients have put on a lot of weight, regained their activity, lost all fever, no bacilli in sputum, yet the opsonic index has not increased. I, however, leave this for others to express an opinion on, and will refer only to one case which is under my treatment at

present. The case is briefly given at bottom of this page.*

Another point I would like to suggest for discussion is, whether we should not use the tuberculin reaction as a diagnostic test in early and doubtful cases. I am quite well aware of the former prejudice against it, and the heavy condemnation of it by the Brompton Hospital Committee several years ago, but haven't recent investigation and actual experience shown that under certain conditions and limitations its application is perfectly safe, and reliable to the same extent and no more, than say the Widal reaction? The limitations for its use being the absence of definite signs of extensive disease, the absence of fever, and the employment of small doses and not on more than three occasions—should not we use it in some of these doubtful cases?

I now come to its treatment in sanatoria. The excellent results obtained from treatment in *suitable* sanatoria, and in suitable cases, is now a settled point which need not be discussed. I think we should try to secure for the public the advantages of sanatorium treatment, and along with it the knowledge of the necessary principle underlying the treatment of this disease which residence in such institutions is a means of disseminating amongst the public. Here in India we play at sanatorium treatment and its principles, by sending our patients to Almora, it is a mere travesty of the reality, and the results are therefore not nearly so encouraging, but whilst this is so, my own experience enables me to say that it is sufficiently encouraging to show what might be obtained under favourable conditions. I began to send cases to Almora 15 years ago, and I have sent over 100. I have no exact figures, but did time permit, I could give sufficient evidence to prove the benefit to be derived from a sojourn at Almora even under unfavourable conditions, and I fancy Col Harris and others could do the same. I feel sure that Almora is suitable for a sanatorium, and yet what are the actual existing means for dealing with such cases at Almora?

A few scattered houses which may be rented, a few boarding houses kept for filthy lucie, not a desirable habitat for consumptives requiring abundant nourishment. I am glad to say a small beginning has been made by the London Mission, who have been enterprising enough to establish a small sanatorium containing accommodation for about 20 Indian women,

* A gentleman in India developed tuberculosis in his testes, both of which were eventually removed at home, where he remained for nearly two years, getting the benefit of a course of treatment under Sir Almroth Wright, who just as this gentleman was leaving for India assured him that his opsonic index was all that could be desired, this gentleman within three weeks of getting this assurance began on the sea voyage to get pain over his shin bone, as a result of a very slight injury. On landing I found that he had a tuberculous abscess in connection with the periosteum of his tibia, which was denuded over a good sized area.

who need not necessarily be Christians, all under the care of a lady doctor

At the present time I am credibly informed that the matter is receiving the attention of the Government of the United Provinces, who are prepared to give free to any one portions of land on the condition that they only built small tenements on them for the purpose of being rented to consumptives only. Each tenement to consist of two rooms, a kitchen and a pantry, and not to cost more than Rs 1,500, and not to be rented at a higher rate than Rs 20 a month.

This latter, gentlemen, is the germ of what should be a far larger and better scheme, and is an indication that Government is beginning to see the need for such institutions, and would probably view with favour the elaboration of a more complete scheme, if it were pressed influentially.

A discussion on tuberculosis on purely academic grounds, however interesting and useful it may be, would in my opinion fall far short of the advantages that might be secured for the public, were we not to take the opportunity, which arises in the course of such a discussion, and at such a time, when public opinion is vividly interested in tuberculosis, and likes to talk about opsonins and such things, to impress upon Government in a representative, but non-official manner, conveyed through suitable channels, the pressing need for a properly organised sanatorium for Europeans, and another for Indians, and if the suggestion should meet with the approval of the president and others, I hope this course may be adopted, which will, I feel sure, lead to excellent results.

THE INCIDENCE OF PHTHISIS IN CALCUTTA *

By T. FREDERICK PEARSE, F.R.C.S., (Eng.)

D.P.H. (Camb.),

Health Officer

MR. CHAIRMAN AND GENTLEMEN,

I may prelude my few remarks on the incidence of phthisis in Calcutta by drawing your attention to the hopeless condition of all statistics for any part of India except perhaps for this City and that of Bombay. So long as the recorded causes of deaths are merely those given by the relatives and friends at the several burning ghats and burial grounds, vital statistics must be valueless.

In the report of the Sanitary Commissioner with the Government of India we learn the incidence of this disease in the European Army, in the Native Army, and in the jails. In the British Army the death-rate is 17 per 1,000, in the Native Army 52 per 1,000, and in the

jails 321 per 1,000. For the general population we obtain no information whatever.

When we enquire in the Provincial report for particulars relating to Bengal, we are equally disappointed. Now, it is fairly obvious that the incidence of this disease amongst troops or in jails is of no value to us as a guide to its prevalence amongst the general population.

With all deference to the carefully compiled figures of the admission rates, death-rates, and of post-mortem examinations relating to certain hospitals given us by previous speakers, I must confess I regard them as very doubtful indications of the prevalence of phthisis for the following reasons. We do not know the amount of the population which, so to speak, feed the hospitals with patients, it is only the sick who are willing and who can conveniently attend who enter the hospitals for treatment, and it is only in the later stages of the disease that the assistance of the hospital is sought. In other words, they only can give us imperfect indication of the prevalence of the disease amongst the general population. Recognizing these difficulties, I have examined all the reports of the medical inspectors of the Plague Department for 1905 and since. I must explain that the officers of the Plague Department make enquiries of all deaths occurring in Calcutta except those which take place in the hospitals. These enquiries, with a report of the history on each fatal illness, enable us to correct the causes of deaths as given by the friends and relations at the several burning ghats and burial grounds, and our monthly and annual statistics are corrected accordingly. I would first draw your attention to the peculiar constitution of the population in Calcutta. See also Table hung up

Males constitute	66.3 per cent
Females „	33.7 „ „

The proportions of the sexes vary greatly in the different wards.

Since the Census of 1901 the population has doubtless increased considerably.

Assuming the same rate of increase since 1901 as in the decade 1891—1901, we may estimate the population at the middle of the present year at 1,014,557. We cannot make the same estimate with the same probability of approximate correctness for the several Wards, for the numbers of the two sexes, or for the populations at the several age-periods, many changes of the populations in the several parts of the city being known to have occurred since the Census of 1901. We have, then, for our smaller calculations to fall back upon the Census figures of 1901.

The mortality from Tubercular diseases in Calcutta have been as follows —

1905—2,052 deaths	a rate of 2.4 per 1,000
1.9 for males,	3.3 for females.

* Being a paper read before the Medical Section of the Asiatic Society of Bengal.

In previous years the deaths were not enquired into and the rate of tubercular disease mortality was returned at about 17 per 1,000

In 1906—2,201 deaths from tubercular diseases were reported a rate of 26 per 1,000. A rate of 18 for males and of 37 for females

In 1907—2,241 deaths occurred a rate of 26 per 1,000. A rate of 20 for males and of 37 for females

In 1908—2,101 deaths a rate of 24 per 1,000. Females 34 per 1,000. Males 20 per 1,000

For England and Wales (1901—1905) the rate was 19 per 1,000

For Bombay City the returns give a rate of 38 per 1,000

When we come to examine the figures of successive years for Calcutta, we find that the death-rate from tubercular diseases average 25 per 1,000, and that the death-rate amongst females average about 35 per 1,000 as compared with 2 per 1,000 for males. Still more striking is the high mortality amongst Mahomedan females, viz., 58 per 1,000 as compared with that of their Hindu sisters (3 per 1,000). The rates in the several wards vary considerably, e.g. In Ward 11 the rate for females is only 14, whereas in Ward 14 it is 4 per 1,000. In Ward 11 Mahomedan females have a rate of only 14, whilst in Ward 5 the rate for Mahomedan females is 128. In Ward 4—73. In Ward 10—72

In England the mortality is proportionately greater amongst males. These figures are in themselves important, but taken in conjunction with the small female population of Calcutta, they suggest that our phthisis mortality is under-estimated, because if the females equalled in number that of males, we should have a larger number of deaths from this disease

There is, I think, only one explanation for the greater incidence of phthisis amongst females in Calcutta, viz., the conditions of female life—the deficiency of fresh air

The incidence of the disease as regards age is much the same as in Europe, viz., increasing up to the fourth decade. In females, however, the incidence between 20—30 is very high. Phthisis, however, in Calcutta probably kills off at earlier ages

I can only roughly show the incidence of phthisis in relation with density of population, because the Census figures do not show the density of the population in relation to the dwelling, except for the area of a whole Ward, and the density per room or per house is the only satisfactory basis upon which to estimate its influence

I have calculated the mortality of phthisis amongst dwellers in huts and pucca houses respectively, and the conclusion to be drawn from our figures is that the disease is twice as common amongst the population living in huts. This is partly a question of overcrowding, as I find that the average number of occupants per

hut is 6.47, and for each room in a hut 2.41, whilst for pucca houses the respective figures are 10.44 per house and 1.72 per room. Huts, therefore, per room are much more densely populated. We must not, however, overlook the difference of structure in the two classes of dwellings. Most pucca houses are more or less paved and comparatively dry, whilst the floors of huts are kutcha and more or less perpetually damp. This latter condition has long been recognized as favouring the development of this disease

The varying incidence of phthisis in the several wards of the city seems to depend upon the different constitutions of the populations of the several wards. Where we have large Mahomedan populations as in Wards 20, 14 and 19, the phthisis rate is high because the female death rates in these Wards is so excessive

In such Wards as 7, 22 and 3 the phthisis rate is low either because there is a great excess of males or because there are comparatively few Mahomedans. The conditions of female life must be particularly unfavourable in Wards 20, 14, 5 and 7, because in these Wards the female death-rates from phthisis vary from 39 to over 5 per 1,000

Gentlemen, you cannot regret more than I do the want of accuracy in our vital statistics. But such as they are, they tell us of the prevalence of the disease in the city, of the greater rate amongst females generally, and of the excessive mortality amongst Mahomedan females

Occurring as this disease does chiefly in the valuable working years of life, its prevalence is a serious drawback upon the productive capacity of the people. So long as the sick remain in their own homes and subject to the insanitary conditions of life which prevail there, we have little hope of affecting the prevalence of the disease. We cannot wait for the reconstruction and regeneration of the homes of the people, but we could do something by removing the sick to more healthy surroundings

On these grounds I strongly support the proposal for the establishment of a special sanitarium for these cases, partly because removal from such surroundings will give the only chance of cure, and partly because I believed every advanced case of phthisis is a source of danger to those who live with him

THE CONSTITUTION OF THE POPULATION OF CALCUTTA COMPARED WITH THAT OF BENGAL

Ages	CALCUTTA		BENGAL	
	Males	Females	Males	Females
0—5	37	34	66	71
5—10	37	33	76	74
10—15	47	28	62	50
15—20	61	31	43	45
20—30	178	60	83	89
30—40	142	53	71	66
40—50	88	41	49	46
50—60	44	26	28	29
60 & up	27	23	23	29
	661	334	501	499

SOME REMARKS ON THE PREVALENCE OF TUBERCULOSIS AMONG OUR COMMUNITY *

By G C CHATTERJEE,

Assistant Bacteriologist, Medical College, Calcutta

No one now entertains any doubt regarding the fact that tuberculosis which was once believed to be a rare disease in this country is not only a very common disease, but that there is evidence of its increasing at a rapid rate, as can be testified by all practitioners, as well as by the statistics from hospitals. At one time it was believed that its depredations were confined to city life on account of confined and poisonous atmosphere incidental to town life, but any one who has experience of people living in villages, will admit that it is as common in villages as elsewhere, on account of the insensate insanitary way of living prevalent among the lower classes of people—living huddled together in small huts around which dense vegetations are grown to effectually exclude light and air. Unfortunately no reliable statistics are available regarding the number of people who succumb every year to this disease, and it will be years before we expect to see a special column set apart for tuberculosis in the Sanitary Commissioner's Report in which this disease is at present mostly returned under respiratory diseases.

One peculiar feature of the distribution of tuberculosis here is, as has been noticed by Major Rogers, that surgical tuberculosis which is comparatively common in England is a rare disease here. This is explained on the supposition that cattle tuberculosis being comparatively rare here, the surgical type of the disease which is caused by bovine tuberculosis is accordingly rare. That may be one of the causes, the more potent cause is due to the custom of the people in invariably boiling the milk before use. So far as my knowledge goes, I have never seen any one among our countrymen who uses unboiled milk unless it be on the express advice of medical men. As tubercle bacilli are easily killed by boiling, spread of bovine tuberculosis through milk is practically impossible. Regarding the infection spreading through eating meat, it is a well-known fact among our countrymen that goats do not suffer from tuberculosis, and this belief has been confirmed by the results obtained recently in European countries, as can be seen in the reports of the Tuberculosis Congress held in Paris.

But this is only one way and a very minor way of spreading of the infection, there is a far more difficult problem remaining to be dealt with—the prevention of the spread of the disease through the respiratory tract from man. The difficulty lies in the peculiarity of tuberculosis which is

different from any other known disease, in that the people affected with it can go about even in an advanced stage of the disease without being noticed, coughing out and spitting out as it were numerous tubercle bacilli among unsuspecting people. Herein lies the great usefulness of diffusion of knowledge, regarding the way by which the infection spreads, among the lay public of this country, aided by some stringent legislative Acts imposing penalties for disregarding the rules made for the purpose of prevention of infection. The amount of ignorance and prejudice amongst our even educated countrymen is appalling, and, if they are left to themselves, the disease which is already showing signs of increase—the death-rate attributed to this disease being higher than that of European countries which are believed to be specially affected by it—is bound to rank within a few years as one of the chief diseases along with malaria and cholera. This ignorance is, no doubt, the chief factor to be dealt with, but there is another one, the economic factor which has to be borne in mind in devising any means for prevention of the disease.

As tuberculosis attacks the young and most promising and therefore the earning members of the families of the middle classes mostly, the chance of prospect of cure and thereby the prevention of infection are materially diminished from lack of proper rest and climatic treatment, this means the person affected with it, taking leave from his office, absenting himself from his work, with the prospect of dismissal or loss of his work if the stay is prolonged. A hurried sojourn to one of the many reputed healthy stations, at the expense of a good deal of money and worry, and a quick return to his place of work, if there be any slight improvement in his condition which is taken for cure, followed by a relapse which very often kills the patient, leaving the family ruined pecuniarily as well as leaving some infection in the family members who attended him, are the ordinary sequences of events which we see very often amongst our community. In this way, a single case becomes the starting point of numerous cases, and accordingly it is no wonder that the disease is increasing at such an alarming rate. As an instance in point, the history of origin of a series of cases which spread from a single case, is given below.

Among a healthy family, born of healthy parents, reputed for longevity and big stature, consisting of six brothers and four sisters, aged between 17 to 38, living in a congested quarter of Calcutta, one of the brothers, aged about 23, had an attack of hæmoptysis in 1905, followed three months later by regular apical mischief. He went to a seaside station for a change, got rid of the fever and cough, gained in flesh, there was left very little of the apical mischief, came back home against medical advice, got a relapse a few months after and died within a year. One of the sisters, having no tubercular taint, aged

* Being a paper read before the Medical Section of the Asiatic Society of Bengal

about 20, who attended her brother, started getting fever and cough, and after termination of pregnancy got a most acute attack of pulmonary tuberculosis and died within three months, without having any amelioration of her symptoms by a change which was tried at the last stage. No adequate precautions could be taken by the family to prevent spread of the infection by leaving the infected house, etc., as the resources of the family became gradually exhausted by the expense of treatment, including the trips to health resorts. Another sister who also lived in the same house, began spitting blood soon after the death of her sister, carried the infection to her father-in-law's house, two members of this family getting the disease. She is still getting occasional attacks of fever and cough. Another sister aged about 17, living in the same house, got also an attack of fever and cough about this time and died six months later of tuberculosis. A child, aged about two years, has got a continued type of fever with enlarged submaxillary lymphatic glands, lasting over a year, three cousins living in the same family have coughed up blood several times. The husband of the first sister had an attack of hæmoptysis and nearly died of tuberculosis, but was cured by change of climate and proper treatment. The youngest brother of the above family has also started recently getting occasional attacks of hæmoptysis.

So that from a single case, starting in 1905, ten infections have occurred, of which three have been fatal, and this is not an isolated instance of its kind.

Now, could this spread of infection have been prevented? I do not know whether it is possible for the afflicted family to do so from its unaided resources, as the prolonged course of the disease entails a great deal of expense for proper treatment, so that segregation of the members affected and the taking of precautions against the spread of the disease are not possible for them without the help of organizations such as sanatoria established by antituberculosis associations. So that the establishment of a sanatorium which will serve the purpose of treatment as well as segregation has become an absolute necessity.

It is, indeed, strange that while all the nations of the world have started antitubercular campaigns and are also making combined efforts against the disease by holding International Tuberculosis Congresses, India has not sent a single representative to the Congresses as yet, nor has yet started a single sanatorium worth the name, this might make one think that tuberculosis is not so rampant among us as in temperate climates. But the facts are otherwise. To get rid of the difficulty created by this rather peculiar economic problem mentioned above, the following suggestions are made. A sanatorium is to be built in a healthy station. Somehow or other the health resorts in the hill stations near Darjeeling do not suit our people. Living in

the comparatively mild climate of the plains, the people, as soon as they go to these places, avoid, as much as possible, the open air for fear of catching cold. I have seen, in many cases, the disease taking a rapidly fatal course after the arrival of the patient at Darjeeling. The sanatoria which are to be built for this purpose ought to have a special feature about it, on account of the custom of the middle classes of avoiding all places called by the name of hospitals where the patients are kept away from their family members and attended by outsiders, for this purpose, separate blocks should be built, each of which will serve to locate a single patient with his family members, limited to two or three, with everything complete in itself. The rent of these houses is to be fixed as low as possible, but not to be entirely free as purely charitable institutions are avoided by them. Sets of rules for prevention of spread of infection are to be posted in prominent places, and to be enforced by a sympathetic medical officer who will be in charge of the patients and who will conduct the sanatorium method of treatment. A sanatorium on this plan is going to be built in Puri out of the funds left by a Hindoo lady. If several such were built, a part of the problem will be solved, as those getting the disease will know where to go to. They will find a house to live in without any trouble and at very little expense, where they can live freely without any compulsion, for advanced cases a separate sanatorium is to be built.

Secondly, as there are indications that the ultimate remedy for this disease which is caused by a bacillus which can be grown, will be found in Bacteriological Laboratories and not by Pharmacutists as the recent discovery of E. Klebs, of the valuable healing properties of tuberculozin aided by Blind-worm tubercle bacilli (as reported in the December number of Vichow's archives), it is essential that a central institute, after the model of the Jenner Institute of London and Kaiserlichen Institut für Infectious Krankheiten of Germany be established here, which will supply the injecting material used for treatment (sera, vaccine or some such bacillary product as the case may be), so that medical men here will get reliable freshly prepared remedial agents, instead of having to depend on those prepared some months previously by private firms in Europe or America, which are not often available in a fresh condition and not properly standardized in some cases.

Another method of combating the disease in a well-organized and systematic way is by instituting insurance companies for workmen, these have been found to give admirable results in Germany and go by the name of Arbeiter-Invaliditäts-Versicherung.

Every workman is insured compulsorily. A payment of a very small fraction of the pay of each workman to the State treasury insures

the life of the payee against tuberculosis. The fund realised in this way is utilised in providing model dwelling-houses, teaching the sanitary laws to the people, providing sanatorium treatment for those affected in the sanatorium established from the fund, providing for the family so long as the workman is under treatment and in finding easy and outdoor work for the convalescents. In this country, the Government could make a beginning by establishing one such among the poor clerks and workmen employed by Government, and I doubt not that it will do immense good to them, and will be taken advantage of by them to the fullest extent.

HAZARIBAGH AND TUBERCULAR DISEASES

By B. H. DEARE,

MAJOR, I. M. S.

HAZARIBAGH has acquired a certain measure of reputation as a suitable place for the treatment of cases of pulmonary tuberculosis, and we often find patients suffering from this disease coming here for the benefit of their health under orders of their medical advisers. I think the limitations of Hazaribagh should be clearly understood by medical men, and the object of this short note is to emphasise these limitations, so that patients may be sent here at suitable seasons when the greatest benefit may accrue.

I would first note that the one season of the year when patients will derive good from the climate of Hazaribagh is the cold season, *i. e.*, from October 15th to the end of March. The daily variations of temperature in the hot months (and it is exceedingly hot for nine weeks) are very great, 15 to 20 degrees being the rule, and 25 degrees not uncommon, these marked changes are not, I find, beneficial to consumptives, in fact, are harmful. When the rains break, there is a great drop in temperature, but at the same time we then get a very chilly, damp, East wind, which is harmful to people in robust health, and dangerous to the class of patients under our present consideration. This season is also a time in which malarial fevers are very prevalent in the district.

My second point is that it must be remembered we are 43 miles from the line of rail, and patients often find the journey most trying. It is true a steam motor car service is running twice a week up and down, but the fumes from the cars are harmful. In a recent case under my care I ascribe a recurrence of hæmoptysis to this cause. No doubt, communications with the opening up of coal fields will be improved, but I would emphasise this point that the difficulties of transit should be borne in mind when sending cases here, as a journey may seriously throw back advanced cases.

A third point is the food supply question, this more particularly affecting European patients. Except in the cold season there is no meat supply worth eating available, and fruit and vegetables are not locally procurable. Owing to the distance from the rail it is practically impossible to get supplies up in a fresh state, and the cost to many would be prohibitive. Ice also cannot be obtained. Our bread supply was very bad, but this defect has been remedied by the starting of a central jail bakery. The milk supply is fair, but will be good with the starting of the Reformatory School dairy. In the cold season we can get supplies (good and varied) to suit the delicate digestion of patients of this class, but I would particularly emphasise the dietary difficulties at other seasons of the year, and have on two occasions last year advised friends of patients requiring careful dieting not to send the cases here for this very reason.

With these limitations borne in mind, I am of opinion that one may safely say Hazaribagh from October 15th to the end of March is a suitable place for consumptives, specially those in the early stages of the disease. Then, with bright days, bracing air, equable temperature, good and varied food supplies, patients can come here and benefit greatly, but at other seasons Hazaribagh is not the place to which tubercular cases should be sent.

HAZARIBAGH IN RELATION TO TUBERCULAR DISEASE AND ITS TREATMENT

By THE REV. D. I. G. I. HEARN, M.D.,

Dublin University Mission, Hazaribagh

AN experience of 14 years' practice in Hazaribagh has convinced me of the healthiness of the district and more especially of the Hazaribagh Plateau from a tubercular point of view. Our dispensaries are mostly attended by the victims of malaria, dysentery, carbuncles and their sequels, and the percentage of tubercular lung disease is very small. For instance, to take the dispensary at head-quarters during the last three years, 21,900 new out-door cases were seen and the record of tubercle is only 50 cases or 0.22%. The number of cases admitted to our hospital during 13 years was 5,726, which included only 142 cases of phthisis.

Small as the number of cases of phthisis is, tubercular bone disease is still less. The number of cases have not been worked out yet, but they are comparatively rarely seen, though cases of both tubercular bone and joint disease do occasionally come in.

Most of the people in this part of the country are agriculturists, leading a healthy out-door life such as is calculated to diminish the chance of contracting tubercular disease so long as they stick to their ordinary conditions of life,

but the lack of immunity in the natives of the soil, if once exposed to infection, was forcibly brought home to us by the following experience. Six Indian Christian guls (aborigines) were sent up north-west to be taught nursing. Four of them were placed in the Cawnpore Mission Hospital and two in Delhi. Of the four who went to Cawnpore, three contracted phthisis, and one of the two who went to Delhi contracted tubercular intestinal mischief. Hence it has been thought expedient to arrange to have others trained in future on their native soil where there will be less risk of infection.

Besides the experience gleaned from the record of cases coming from the district to the dispensary, I have come across a good many cases of phthisis sent here, mostly from Calcutta, for a change. These have been (1) in connection with the temporary Consumptive Home, worked as an off-shoot of St. Mary's Home, Calcutta, where for a time I attended cases, and (2) Indian gentlemen who have been sent up from Calcutta.

The Consumptive Home was chiefly occupied by Eurasians, and except in hopelessly advanced cases the results were excellent, except during the hot weather when the hot dust-laden wind did not exert at all a good influence, and patients lost ground.

As regards Bengalis and other Indian gentlemen coming from Calcutta, they usually (except in the summer) do very well if the cases come in time and they observe the ordinary rules of open air treatment, but they object very much to the cold nights here in December and January, and they decline to admit the necessary degree of fresh air at night which materially retards their progress. *Puri* would seem to be better for the treatment of such cases as its temperature in the winter seems less sharp and more uniform. To sum up, in Hazaribagh the percentage of cases of tubercular disease is very small. The effect of the climate during most of the year is decidedly favourable to the treatment of such cases. It should rank high as a centre to which to send patients from such places as Calcutta and Patna. As far as one can gather, however, Almora would seem to be much more favourable still, and *Puri* and Waltari should, perhaps, also get preference.

That a sanatorium should exist for the treatment of consumption somewhere in Bengal all are agreed, and every effort should be made to induce Government to open one. If the sea coast places fail for any cause, sites more favourable than Hazaribagh town itself will be easily found on the hills skirting the Damodar valley (e.g., Loogoo, Jhoomia, Jehadag) where suitable spots could be found between 2,500 and 3,200 feet above sea level, these will be easily approachable before many years when the projected Damodar valley railway will be opened.

NOTE ON DARJEELING CLIMATE IN THE TREATMENT OF PHTHISIS

By J. T. CALVERT, M.B.,

MAJOR, I.N.S.,

Civil Surgeon, Darjeeling

THE question of the suitability of Darjeeling as the site of a sanatorium for the treatment of phthisis was carefully considered some years ago. The conclusion arrived at was that the place was both unsuitable for the treatment of natives with consumption, while it was also undesirable that they should be induced to come there owing to the obvious danger to the surrounding population. Eventually a ward was constructed with accommodation for twelve patients, as it was said that phthisical subjects would come up with the hope of benefiting themselves, and that being so, it was better to make suitable provision for them in a well-equipped hospital, and thus lessen the danger of the spread of the disease, rather than leave them to seek accommodation in a crowded house in the bazaar. As regards the Eden sanatorium, there is no provision for phthisical patients, and none are knowingly admitted.

There is one insuperable bar to Darjeeling ever proving a suitable place for poor European consumptives, and that is the cost of living, which is far in excess of any other hill station in India and which is still steadily mounting. It would be cheaper to take a trip home than to Darjeeling for people of moderate means. As to the suitability of the climate, it depends on the time of the year and on the case. Advanced cases do not do well, if there has been much lung destruction. They find considerable difficulty in breathing, and complain of discomfort and a sense of uneasiness. From the beginning of June till the middle of October there are heavy rains with mist and absolute saturation of the air with moisture. There is not much sunshine and exercise out of doors is curtailed. To keep out the mist and damp, rooms have to be shut up, and as there is not much air current, the house gets stuffy. During the period mentioned, I should say the climate was unsuitable for all classes of cases. From October to the middle of May I should regard the climate as very suitable for early cases. During the winter months there is much sunshine with clear bracing air. It is possible to be out of doors all day long, to take exercise without fatigue, the appetite is good, the desire for food and the capacity for digesting it are all increased, and sound sleep is obtainable free from insect pests and without the need of mosquito curtains and punkahs. As against these advantages it must be mentioned that building sites are few, house rent ridiculously expensive in consequence, and further living and sleeping rooms are very small, too small usually for the number of

inmates Like most hill stations, it is site-crowded There is a great deal of phthisis among the resident population, who during the season are overcrowded to an extreme degree

If a residence for European consumptives is being sought, I fear it will have to be some other spot than Darjeeling A better place amongst the hills would be Kalimpong, where the Scotch Mission is There the rainfall is lighter and the cost of living cheaper, the amount of building space much greater and some open employment might be found for the patient

Major R H Maddox, *IMS*, did not consider the climate of Ranchi to be suitable for a sanatorium for phthisis

The following resolution was proposed by Lt-Colonel Pilgrim and seconded by Dr Pearse, and carried unanimously

"The Medical Section of the Asiatic Society of Bengal having discussed the subject of tuberculous disease in Bengal, and its wide prevalence, are of the opinion that it is an extremely common cause of great suffering and mortality, both among the European and Indian communities, and therefore venture to call the attention of the Government of India and the Local Government, to the urgent necessity for providing a properly equipped sanatorium for the treatment of early phthisis, such as has now been provided with most satisfactory results in nearly all civilised countries"

A FEW NOTES IN SUPPORT OF CAPTAIN MEGAW'S ARTICLE, "ARE SEVEN-DAY FEVER AND THREE DAY FEVER FORMS OF DENGUE?"

BY H FOOKS,

LT COL, *IMS*,

15th Lancers (Cureton's Mullaik)

In the spring of 1899 there was a severe epidemic of Dengue of the three day fever type at Landi Kotal, two regiments of Gurkhas who had only recently arrived, suffered very severely, over 80 men being in hospital at one time, and every officer of the Garrison, including the Staff, were also attacked, excepting those, like myself, who had been stationed at Landi Kotal the previous year and had suffered from a similar type of fever then

The symptoms very much resembled Captain McCarrison's Chitral three day fever, and the disease was at first thought to be influenza as no rash or secondary fever was observed, but later on well-marked secondary fever and rash were seen in three cases, all officers, one being the G O C who was the first to notice it when taking his own temperature This epidemic very much resembled the Chitral three day fever, as

all the cases excepting two were of the three-day fever type, and secondary fever and rash were only found in three cases

There were no mosquitoes at Landi Kotal, but sand-flies were abundant

The above epidemic impressed me so much that I have since always looked up at once the symptoms of dengue in new additions of tropical diseases to see if their descriptions agreed with it

I am strongly of opinion that dengue exists in the Punjab as an endemic as well as an epidemic disease, and that it takes the form of both the three-day and seven-day fever type, although it is difficult to understand why the three-day fever type should be more prevalent at one time and the seven-day at another I am inclined to think that the prevalence of the more severe seven-day fever type in the late Sialkot epidemic was due to the disease occurring in men whose constitutions had been weakened by malaria, as the epidemic occurred in the autumn when malaria is always prevalent in the Punjab, and Benign Tertian parasites were found in some of the most severe cases, but it may have been simply due to a more severe form of epidemic, as epidemics of dengue vary in violence in the same way as cholera is well known to do

As our methods of diagnosis of fevers improve, I think that it will be also found much more prevalent than it is now thought to be, the diagnosis being difficult unless it occurs in an epidemic form The descriptions in the old text books are somewhat misleading, as great stress is laid in them on the secondary rash and joint symptoms, whereas the rash is not always present, and, when present, is difficult to recognise, especially in natives, also the joint symptoms are not severe with the exception of the excruciating pains in the lumbar region, which, together with the pain at the back of the eyes, is so severe as to dwarf all other symptoms

The epidemic form is rare in the Punjab, as the natives are immune to a great extent in contrast to the Gurkhas who are very susceptible This immunity is due to previous attacks, and disappears after a few years, secondary attacks, when they occur, are usually of a modified form which greatly increases the difficulty of diagnosis, for example, I myself suffered from a typical attack in 1898 and again from a modified form in 1907, which would not have been diagnosed as dengue had it not occurred during an epidemic

It is most prevalent in the spring, and I am strongly of opinion that it is conveyed by sand-flies which are very plentiful at that time

It is worthy of note that during the late epidemic among the 15th Lancers at Sialkot the horses of the regiment also suffered from a very similar epidemic of fever.

INTESTINAL ANIMAL PARASITES IN MONGHYR

BY OLAYTON LANE, M.D. (LOND.),

MAJOR, I.M.S.,

Civil Surgeon, Monghyr, Bengal

DURING the greater part of 1907 and 1908, I undertook, so far as time spared from duties permitted, the microscopic examination of the stools of two prisoners daily. The number of prisoners thus investigated was 400, but the number of stools examined was considerably greater, for repeated examinations were not infrequently desirable. The method employed has been the usual one of obtaining a thin film, by diluting a speck of faeces with water and applying a coverslip to the glass slide on which it is spread. Two such slides were examined in each case. The amount of faecal matter necessary to make a film sufficiently thin to allow of satisfactory investigation of its individual elements, and yet sufficiently thick to pass in review as much faecal matter as possible is soon learnt by the sweeper who prepares the slides. The cloth supplied by the Jessore jail for the provision of clothing for released prisoners makes a satisfactory strainer. The administration of a vermifuge was always preceded by a light diet for two days, and the dysentery prophylactic treatment, now in force in Bengal jails, was postponed till the stools had been examined. The results obtained are as follows —

Amœba Coli — This protozoon was found in 56 cases, that is, in 14 per cent. The diameter varied from 10 to 40 μ . With regard to the significance of the organism, it is to be noted that 11 of these cases were admitted to hospital with bowel complaints at some time during the period of their sentence. This is a percentage of over 20. The corresponding figures for all admissions into the jail during the same period was 3.5.

Amœba Muirina — In the stool of a gonia from Seiklipura in this district was found in large numbers an organism which, if not amœba muirina, is some other and hitherto undescribed parasitic amœba. It is illustrated in figure 1. The cytoplasm was finely granular and coloured faintly yellow, and was bounded by a fine double contour. In the cytoplasm lay three differentiated bodies, one was finely granular, much as was the cytoplasm, but its colour was yellower than that of the latter, the second was colourless, resembling ground glass, while the third was sharply outlined and contained a small body like a nucleolus. The host, an under-trial prisoner, was unfortunately released from Court, and no reward will induce him to return to Monghyr for further examination, nor will he be convinced that there is not some deep design under the suggestion. Amœba muirina has been described by Ijima in Japan. It was found in the serous fluids of a woman suffering from endothelomatous pleuritis and peritonitis, and also in the hæmorrhagic stools she passed two days before her death. Braun's description of the parasite

is not very detailed, nor does it altogether correspond with the figure he gives. The parasite measured about 70 to 80 μ in diameter, and if Braun is correct in stating that the one described by Ijima had a diameter of between 15 and 38 μ , then unquestionably that now described, has been described for the first time. The host was in good health and appeared to be in no way inconvenienced.

A flagellate was found in the stools of one man on three separate occasions. This occurred before the method of fixing and staining described below had been elaborated. The parasites disappeared later, but it will no doubt be not long before the Indian parasitic flagellates are again recognised and identified.

Balantidium Coli — Three instances of the harbouring of this parasite have been observed among the cases now reported. It appears never to have been reported from India. Braun says that 78 cases have been described, 25 in Russia, 15 in Scandinavia, six in Cochin China, five in Italy, eight in Germany, two in the United States and one each in the Sunda Islands, Tomsk and Alexandria. I suggest that in reality the parasite is not so infrequent as the figures indicate,* but that the fact that it has not been noticed before in India is due to its rather rapid disintegration as the stool cools. I have found that under these circumstances the cilia disappear, and there remain only inconspicuous granular masses which will probably not attract attention unless the previous experience of the observer has included the watching of the disintegration of the parasite under the microscope. Should, however, this have been the case, the significance of these granular masses will be appreciated, and an examination of the fresh stool display the active parasites. The size of the parasite is about 45 by 31 μ , it is ciliated all over, the cilia being longest at the anterior end. It should be distinctly understood that the typical picture (fig. 2) is to be regarded as a composite one. It is my experience that the different components are rarely, if ever, to be all made out in the same individual. The anterior end does not always maintain the same shape, but the creature may retract the usually axially placed "ram," and protrude in from a neighbouring portion, thus worming its way between obstructing faecal granules. Similarly, the cytostome and cytopharynx are probably formed by active protoplasmic contraction, certainly they cannot always be recognised, and I believe it to be very questionable whether they are always present even in a firmly contracted condition. The anus too is usually not present, nor is the contractile vacuole generally visible. The nucleus which lies in the anterior half of the animal is generally so overlaid by food granules as to be completely

* This suggestion is borne out by the fact that I have found balantidia in two more cases in 1919. In one they were so numerous that eleven were counted in one field at one time.

hidden. In the fresh stool there may be found encysted shapes (fig 3) enclosed in a double contoured shell about 2μ in thickness with fairly finely granular cytoplasm, and occasionally the cytoplasm is found actually shrunk away from the shell (fig 4). It is of interest to compare these natural forms with those assumed by the organism when treated by certain chemical reagents. Exposed to the vapour of 1 per cent osmic acid immediate fixation occurs, more or less in the natural form. If then treated with a solution of carbonate of soda the cytoplasm appears like ground glass and the nucleus becomes visible (fig 5). If to the fresh stool spread out as a film a saturated solution of perchloride of mercury be added all trace of cilia disappears. The organisms assume the form of spheres 40 to 45μ in diameter, there may be no optical differentiation between the different parts the whole sphere appearing to consist of densely granular cytoplasm (fig 6), or the densely granular cytoplasm may be slightly (fig 7), or very considerably (fig 8) shrunk away from a fine shell about 1μ in thickness. Staining presented great difficulty. Leishman's stain eosin and methylene blue were quite ineffectual. The method finally adopted was a modification of that recommended by Jackson Clarke. The moist film was first fixed by osmic acid vapour, then dried and placed in a saturated solution of perchloride of mercury for four hours, next washed for four or five hours in several changes of water, and finally stained for from 12 to 24 hours in a weak solution of Bohmer's alum hæmatoxylin and if necessary cleared in acid alcohol.

The tediousness of the method is an obvious drawback, but nothing simpler was found in any way satisfactory. In the case of two of the men only one stool was examined in each instance, in the case of the third many examinations were made and balantidia were present on every occasion, but in no case were they present in other stools examined on the same day. There can be no question then of the balantidium having been mistaken for a water paramecium present in contaminated water used for diluting the stool, and its presence in India as an intestinal parasite is definitely established.

Fasciolopsis Buski—This large fluke was passed after santonin, its presence had been unsuspected as no ova had been found, there was a single specimen. Seven cases have hitherto been described in East and South Asia.

Hymenolepis nana—A few ova of this worm I have previously* claimed to have been found in the stools of man in Chupia, and I am now able to give undoubted proof that it is really a human parasite in India. The man in whose stool it was found in Monghyr was a musaher, a very suggestive fact seeing that the worm is probably identical with *H. murina* of the rat. On the first occasion on which the ova were

found there were 66 of them in two slides, so it is no exaggeration to say that there were millions in the stool. He was treated with male fern after the usual preparation, and I personally supervised the straining of the stool, but no strobilus appeared. A fortnight later hymenolepis ova were still present in great numbers, and he was treated with thymol resulting in the passage of 18 ankylostomata whose presence was known previously by their ova, but no strobilus. The thymol, however, had evidently been of some value for the stool examined after this showed no hymenolepis ova, but they reappeared rapidly and a few days later were again to be found in numbers. Eucalyptus chloroform and castor oil were next tried, but with no better result. Owing to the fact that the United States Hygienic Laboratory Bulletin, a monograph by Siles, on this parasite is out of print, I have been unable to ascertain whether there is a better vermifuge for the worm. The stools were thick with mucus, which much interfered with proper straining. Although the strobilus was not found, still the constant presence, except for a few days after the administration of thymol, of the ova in large numbers in one of the rat-catching and rat-eating caste, and their complete absence from all other cases examined during the same period, constitutes unquestionable proof of the claim that the parasite has now been demonstrated in a human host in India. A drawing of the ovum is found in fig 9. Only five hooklets could be made out. It has been reported from Cairo, Sicily, North Italy, Russia, Servia, England, France, Germany, South America, Siam and Japan.

Tenia Solium—Ova were seen in five cases, and proglottides in 15, an incidence of 3.75 per cent. One hundred and twenty feet with six heads constituted the greatest amount of infection in one host.

Trichocephalus Trichurus—These characteristic ova were only found in twelve cases, or 3 per cent. In one only was the worm passed, and that after santonin. It calls for no particular comment.

Strongyloides Intestinalis—The larvae were found in 23 cases, or just under 6 per cent. The adults were never found, a fact sufficiently explained by their usual habitat deep in the intestinal mucous membrane. They could not be credited with any particularly bad effects.

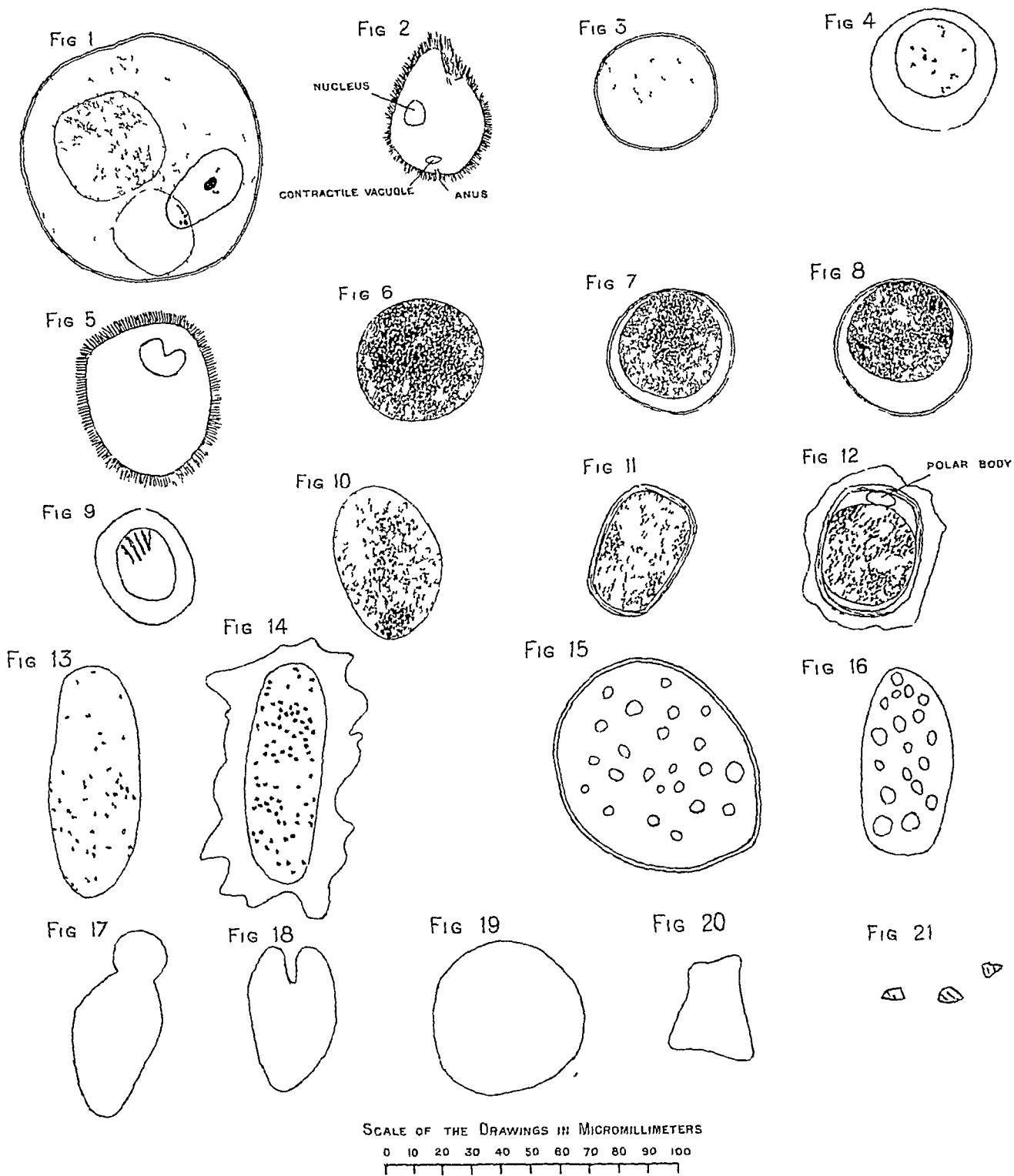
Ankylostoma duodenale—Ova of this parasite were found in 146 out of the 400 cases examined, that is, in 36.5 per cent. It is not possible to estimate the usual number of worms harboured, because usually the vermifuge given was santonin, and this is of little use to expel ankylostoma. The usual number passed was only one or two, and the largest was 50, thymol being the anthelmintic. It is of interest to note that after three doses of thymol of 30 grains each at intervals of an hour had failed to expel any of these worms, Mauson's mixture of eucalyptus

* I. M. G., April 1904.

INTESTINAL ANIMAL PARASITES IN MONGHYR

BY MAJOR A CLAYTON LANE, MD (LOND), FMS

Civil Surgeon, Monghyr, Bengal



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| Fig 1 | Amoeba, possibly A. Muirina |
| Figs 2 to 4 | Natural forms of Balantidium Coli |
| Figs 5 to 8 | Shapes assumed by Balantidium Coli after the application of certain chemical reagents |
| Fig 9 | Ovum of Hymenolepis Nana. |
| Figs 10 to 12 | Intrauterine stages of fertile ova of Ascaris Lumbricoides |
| Figs 13 & 14 | Intrauterine stages of unfertile ova of Ascaris Lumbricoides |
| Figs 15 & 16 | Deformed ova voided by Ascaris Lumbricoides |
| Figs 17 to 20 | Outlines of deformed ova from the oviduct of Ascaris Lumbricoides |
| Fig 21 | "Free bodies" from the oviduct of Ascaris Lumbricoides |

chloroform and castor oil resulted in the passage of 19. In my experience thymol in large doses can be given with complete safety in a jail, seeing that access to alcohol can be absolutely prevented. In no case could it be definitely said that the parasites affected adversely the health of their host. The fact that infection is usually slight is as yet unexplained, it may be due either to the destruction of the eggs or larvae while in the free state, whether by sunlight, drying or by natural enemies, or it may be the result of resistance to infection on the part of the human body, possibly at the time of invasion, possibly later.

Ascaris Lumbricoides.—The ova of this parasite were found in 92 out of the 400 cases under report, that is in 23 per cent, and the worms themselves in 98 out of 142 cases, in which santonin was given, or in 69 per cent. In 42 instances ascariides were passed after an anthelmintic although no ova had been present in two slides of diluted faecal matter. It is only latterly that any attempt has been made to reconcile this discrepancy. The matter has been investigated in nine cases. In six of these there was no possibility of eggs being passed, because the worms were either males only (two instances), or immature only (three instances), or a male and an immature worm (one instance). The other three passed one pair, two pairs, and a single unpaired female respectively. Even from the consideration of these few cases it must be allowed that Manson's statement that if no ascariis ova are found on microscopic examination santonin may be withheld and "the idea of ascariides abandoned" is one which must be modified. There are evidently two fallacies in the dictum, the first that it disregards the presence of male and of immature worms unaccompanied by females, a combination not so very uncommon, and secondly that even if adult females are present, it by no means follows that their ova are so regularly distributed through the faeces as to be necessarily discovered by the examination likely to be made by most practitioners. On the other hand ascariides were not found after a vermifuge in 10 cases where their ova had been found by the microscope. Of these 10 cases, half occurred during three months leave of the regular hospital assistant. One man had charge of the vermifuge operations for three months and the other for 13, and each failed to find worms in five cases. The inference is obvious. Apart from this there is another important inference to be drawn, namely, that the exhibition of santonin is a far more certain way of excluding infection by ascariides than is the microscope, even should the observer have the leisure to devote considerable time to the investigation. This is a point of considerable practical value, and one decidedly unfavourable to any enforced routine examination of stools by the microscope in any large institution. If it be granted that it is impossible for a medical

man qualified by English standards to get accurate results here, what must be said of figures on this matter based on examinations by hospital assistants?

I have already* called attention to the fact that besides the ordinarily described form of ascariis ovum there is another. Up till recently the only suggestion of any previous acquaintance with the occurrence of these ova which I have been able to find was an old lecture diagram at the Calcutta Medical College. Manson, however, in the last edition of his "Tropical Diseases" now figures this form and says that it is probably an unfertilised ovum. Here it will be provisionally called the "long" ovum, but before discussing its significance it is essential to shortly recall certain points in the anatomy and physiology of the adult worms.

The adult female is larger than the adult male. On opening her the vagina is single and short, branching almost immediately into the two long coiled uterine tubes, ending in turn in the ovarian cylinders in which the immature ova are arranged round an axial stem. The genital orifice is in the anterior half of the body. While in the uterus the eggs acquire their double shells. The smaller male has a subterminal caudal cloacal opening into which the alimentary canal and the single spermatic duct open, and from which a retractile spicule may be extruded. Proximally the spermatic duct is continued into the single testicular filament, and the former contains rosettes of spermatic corpuscles which only attain full development after they have been conveyed by copulation into the female genital canal (Braun). In addition it may be added that when the spermatic duct is opened under water the small corpuscles tend to diffuse at once as white cloud, while the heavier ova escape as a roll coiling on the bottom of the vessel when the oviduct is cut. Returning to the long ova, in eight cases this form only of ovum was found in the faeces. In three of these female ascariides were extruded after santonin, but no males, in one a female and an immature male were passed, in two no worms were recovered, in one an immature worm 2 inches long appeared, while in the last three adult females and one adult male was the result. Two of the females in this last case were much distended with ova of the long type only, and the third contained eggs of both kinds. So far as these facts go they are in favour of the suggestion that the long ova are unfertile, the last case being explicable by supposing that the male had confined his attentions to one female. In some instances all of the ova in the lower part of the uterus are of the usual type, and in others all are of the long type. In a worm of the first class the ova at the upper end of the uterine tube measure about 53μ by 35μ and have no shell.

(fig 10), the ova from the middle of the tube (fig 11) have a yolk measuring about 40 by 25μ , and round this a double contoured shell about 2μ in thickness, the yolk entirely filling the shell, while the ovum as it is ready to be passed (fig 12) has a nearly globular yolk about 35μ in diameter, the inner shell has remained practically unaltered in size and shape, and there is an outer shell 4 to 5μ in thickness. The yolk, that is, has shrunk away from the inner shell, and this shrinkage leaves a space averaging about 5μ and situated almost entirely at one pole. Lying in this space will be found with considerable constancy a body which may be termed provisionally a "polar" body, it is oval and measures about 4 by 6μ . Besides the ova there will be found, often in very large numbers, pyramidal bodies (fig 21) free in the uterine fluid, 4 or 5μ in length. In a worm of the second class the ova throughout are much larger. At the upper end of the tube (fig 13) the yolk measures about 75 by 30μ and has no shell, at the lower end (fig 14) the yolk is a trifle smaller, there is nothing corresponding to the inner shell of the ordinary ovum, and that which corresponds to its outer shell is much more irregular and may reach a thickness of 10 to 12μ . There are no small free bodies to be found in the fluid surrounding the ova. In the ordinary ova the great shrinkage of the yolk is coincident with the formation of the inner shell, and it is reasonable to assume that the latter is an excretion of the former, while the outer shell is probably an accretion from the uterine fluid. Probably too the pyramidal bodies are spermatozoal in character, and it is significant that the size of the polar body is much that of a pyramidal body, it may be a superfluous spermatozoon. If the long ovum is an unfertile one the "polar" body cannot well be a polar body in the accepted sense of the term, for the fertilising spermatozoon must have entered the ovum before it begins to undergo the change which differentiates it from the long ovum, that is, before it obtains its inner shell, and the separation of the polar body precedes the entrance of the spermatozoon, but there is no "polar" body in the ova from the middle of the duct, though the inner shell has formed. A consideration of all these facts then fits in satisfactorily with the supposition that the long ovum is an unfertile form. A certain amount of incubation experiment undertaken points to the rapid disappearance of the long ova when the stool is kept, with persistence of the ordinary form, that is, the unfertilised ovum dies and disintegrates, but this requires confirmation before it can be accepted. If this turns out to be correct, it will probably settle the matter.

Yet another puzzling circumstance in the matter of the ova of this parasite is the occasional presence of deformed eggs. In one case besides four of the unfertile ova there were bodies of which figs 15 and 16 are reproductions,

they were faintly yellow in colour, one being very large 80 by 66μ . Six female ascarides were recovered from the stool, one of them containing large misshapen ova, of which figs 17 to 20 are examples.

I have previously* declared my belief that the presence of ascarides is inimical to digestion, particularly to the digestion of dal, and I now add some more facts to this statement. A had much dal in his stool, after santonin he passed three ascarides and many oxyures, having had ordinary food for two days the microscope showed no ova, and the dal was well digested. B had much dal in his stool, passed two ascarides after santonin, and six days later the food was well digested. C had much undigested dal in his stool, passed three round worms and 11 thread worms, and a fortnight later dal granules were very few and only to be found in the thick parts of the slide. D's stool contained a number of entirely undigested dal granules (not the usual partly digested ones), three weeks after the passage of a single ascaris the food was well digested, the amount of undigested dal being insignificant. On the other hand, after the passage of three male ascarides E was passing about as much dal as before. All these men were on the same food before and after the passage of the worms. These are the only cases investigated to elucidate this point, they are not many, but so far as they go they suggest that the problem of the supply of digestible protein in the prisoner's diet is less likely to be solved by the introduction of a radical change in the dietetic habits of the people, the result of which might be quite unexpected, than by the judicious use of santonin or other suitable vermifuges, so allowing the alimentary canal to assume a healthy state, and the digestive ferments to exert their full effect on the ingested food.

Oryzias Vermicularis—Ova were found in one case only, but the adults were expelled in almost exactly 75 per cent of cases treated with a vermifuge. It is thus the commonest intestinal parasite here, and probably the least harmful.

Undoubtedly there is a wide and fertile field for investigation into the intestinal parasites of India, particularly as up to now the amount of work done has been of necessity restricted by having to be carried out in time snatched from heavy official duties, and it may be added, nearly all by Jail Superintendents, facts which of necessity mean that only the fringe of the subject has hitherto been touched.

In conclusion, I have to acknowledge my indebtedness to Civil Hospital Assistant Hem Chandra Ray for the efficient and ungrudging way in which he has carried out work which has involved a considerable tax on his time.

A NOTE ON THE EPIDEMIOLOGY OF PNEUMONIC PLAGUE

By C A GILL,

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INTRODUCTION

PRIMARY pneumonic plague is a well recognised form of the disease, but on account of its comparative rarity it has not attracted much attention and very little has been done to establish its bionomics and in particular its relationship to the more common bubonic variety of the disease

This is the more surprising since it presents certain well marked characteristics both clinical and epidemiological which serve to distinguish it from all other manifestations of the disease

But apart from the purely scientific aspect of the question a proper appreciation of the part played by pneumonic plague in the natural history of plague, as a whole, is of some practical importance

It is not too much to say that at present the position occupied by pneumonic plague is that of a curious variety of the disease, which on account of its rarity is of but little practical importance

Thus, Major Lamb, I M S, in his summary of the work of the Plague Commission dismisses the subject briefly in the following words —

"Pneumonic plague is highly contagious. It is, however, rare (less than 3 per cent of all cases) and plays a very small part in the general spread of the disease"

Again the epoch-making work of the Plague Commission does not include any observations on this form of the disease, to which indeed in all their published work there is practically no reference

During the past three years and especially during 1908 I have endeavoured as circumstances offered to take careful notes of all occurrences of this form of the disease, and these notes which I fear are somewhat fragmentary are the result

THE ORIGIN OF PNEUMONIC PLAGUE

With the annual recrudescence of plague which in the Punjab commences about the month of September, it is the common experience to find bubonic plague appearing in a few widely separated villages, and along with these, though less frequently short but severe outbreaks of pneumonic plague occur in other villages

The question arises How does it originate?

When once started the infection it is well known proceeds direct "from man to man" without the intermediary of the rat and the rat-flea, but how does it start?

This has been carefully gone into, and I do not think there can be much doubt about the answer

There appears to be two possible alternatives

It either starts *de novo*, or it is the result of infection from a case of bubonic plague which has developed a terminal plague pneumonia, or as it is called secondary pneumonic plague in contradistinction to the form we are now considering, which is referred to as primary pneumonic plague

This latter alternative may be at once dismissed, for in my experience these cases of secondary pneumonic plague, which occur occasionally throughout the plague season do not give rise to true plague pneumonia

Moreover I have collected several instances in which the first case was one of true pneumonic plague, and in which the outbreak has remained of this type without a single bubonic case occurring

We are, therefore, driven to consider the first alternative the *de novo* origin, and I cannot do better to illustrate how this takes place than describe a typical instance of the history one gets in these cases

On December 13th, 1907, pneumonic plague broke out in a village called Mokal, in the Lahore district of the Punjab

The village was one with a bad plague history having suffered severely in previous epidemics. The last previous epidemic which was of the bubonic variety had ended some five months previously, since when there had been nothing to indicate that infection remained in the village

The first sign of the approaching epidemic was the occurrence of rat mortality which was noted in the house of the first case eight days before it took place

On the date abovementioned a woman became ill with symptoms of undoubted pneumonic plague and died within 48 hours

This was quickly followed by three others all in the same house, who died with similar symptoms in the course of a few days. Other cases now began to take place, three of whom had pneumonic symptoms, while the eighth case was a bubonic case with an inguinal bubo

All these cases occurred amongst the inhabitants of the house of the first case or they had visited that house

The subsequent history of the epidemic was that of an ordinary bubonic outbreak associated with rat mortality, spreading slowly through the village and lasting some seven weeks

This is an example, perhaps of the commonest history, in other cases the preliminary pneumonic stage lasted longer, in some instances the disease remained of the pure pneumonic variety throughout, in one causing 32 deaths in a small population of 200. In this connexion it is interesting to compare the difference in the manner in which the disease spreads in pneumonic and bubonic epidemics which suggests that the method by which this takes place is not the same in the two cases

In plague epidemics at the commencement when alone the spread of the disease can be

accurately followed, it is found that in pneumonic outbreaks the disease spreads to houses, irrespective of their vicinity, of those who have for one reason or another visited an infected house as is shown in the case of Mokai above.

In bubonic outbreaks on the other hand the disease spreads slowly from the original focus, the houses in direct continuity being first infected and the cases do not give the same invariable history of a visit to an infected house.

In bubonic outbreaks too the incidence of the disease in the infected houses is very different, here single cases are frequent and it is exceptional for there to be more than two in one house, while in regard to pneumonic outbreaks multiple cases in each house is the rule, I have come across instances in which every occupant of an infected house has succumbed (in one case eight out of eight) in the course of a few days, while in not a single instance have I seen one case only.

This epidemiological observation therefore suggests that if in the case of pneumonic plague the infection is direct "from man to man" in bubonic plague it must ordinarily take place in some other manner.

TIME OF OCCURRENCE

Pneumonic plague presents well marked features as regards its time of occurrence, which cannot be considered as altogether accidental and without significance.

In the four epidemics of which I have notes, the time of its first appearance was as follows —

1905—1906 Epidemic (Sept — Sept)	Jan 24th, 1906
1906—1907 " " "	Feb 1st, 1907
1907—1908 " " "	Dec 13th, 1907
1908—1909 " " "	Oct 10th, 1908

The last outbreak in the 1907-1908 epidemic was on March 16th, and in the two former epidemics this was noted as about the time of the last outbreak and its occurrence after April 1st has not been noted.

The characteristic of pneumonic plague is therefore its occurrence at the early part of the plague season, during the months of January, February and March, that is, while the epidemic is on the increase but before it has reached its maximum intensity.

Thus, while in the Punjab, the time of maximum intensity is April and the beginning of May pneumonic plagues chiefly prevalent in February.

But not only is this the case, but it exhibits the same features in regard to its time of occurrence in the individual epidemics in villages.

For as was exemplified in regard to the typical case of Mokai it was at the commencement of the epidemic that it appeared and it lasted a comparatively short time being succeeded or replaced by a more prolonged bubonic outbreak.

It is not easy to understand the reason for this, but it suggests that the organism of plague has acquired at this time an unusual or perhaps "exalted" degree of virulence, which, however, it is not long able to maintain.

PREVALENCE

I am unable to give any figures showing the actual prevalence of the disease or even to roughly estimate the proportion it bears to the general epidemic.

Judging from reports one reads it is probable that it varies in different parts of India, and it is my impression that it is commoner in the comparatively cool climate of the Punjab than in the warmer and moister parts of India.

It would be interesting to know whether this suggestion is correct in regard to its possible occurrence in England.

As regards the variation in its prevalence from year to year it is equally difficult to speak with certainty, but it appears to vary directly with the general epidemic being comparatively more common in "bad" plague years than mild ones.

The actual percentage ratio it bears to the general epidemic, though a matter of interest, is not of great importance since its influence on the general spread and prevalence of the disease cannot be accurately gauged by a mere consideration of its numbers.

Its power in this respect, it will be shown, is out of all proportion to its numbers.

MODE OF SPREAD

The means by which the disease is spread will be again referred to in connexion with the typical outbreak at Mokai.

Four out of six inhabitants of the house of the first case took the infection and died, the disease was next found in the houses of those who had visited this house.

In addition two individuals fled from an infected house to other villages, but both developed the disease and died shortly after arrival.

In one case no evil result followed, but in the other after a preliminary epidemic of pneumonic plague a severe bubonic outbreak ensued.

In this way in another case I was able to trace infection carried by one case of pneumonic plague, to five villages in succession in which it caused a total of 27 deaths from pneumonic plague besides being followed in two of these villages by subsequent outbreaks of bubonic plague in which 54 individuals died.

Pneumonic plague is, therefore, of importance not only as a means of spreading pneumonic epidemics (which are of comparatively little importance), but also and to a greater extent as originating bubonic outbreaks.

This is again exemplified in connexion with another village which not only shows this point but demonstrates the extreme ease and rapidity with which pneumonic plague infection in man is conveyed to the rat.

A man suffering from pneumonic plague (or rather developing it on arrival having previously "cupped" a case of pneumonic plague) entered a village which had never previously been infected and died within 24 hours.

Three other inhabitants of this house (which was a hut built up against the outer face of the wall surrounding the village) quickly developed the disease and died within 48 hours.

Four days after the death of the first case I visited the village, and on inspecting the hut saw two dead rats underneath the bed on which one of the men had died.

If it be admitted that these rats died from plague (being unable to take precautions, it was considered too dangerous to examine them at the time), then infection must have spread from man to the rat and caused their deaths in less than four days probably considerably less.

This hut was then burnt and the neighbouring houses evacuated with the result that only two more cases occurred and the epidemic was thought to be over.

After a short interval, however, cases of bubonic plague began to occur and continued to do so for the next three weeks with some severity.

The question of this rat mortality is of some importance. It is not open to reasonable doubt that they died of plague and it therefore serves to indicate the necessary link connecting the preliminary pneumonic and the subsequent bubonic outbreak. Moreover, if pneumonic infection can so easily pass from man to the rat it does not seem improbable that it can similarly pass from rat to man.

Whether in these pneumonic outbreaks this infection passes either from rat to man or from man to rat direct or not, there is nothing to show, but it does not seem impossible or improbable that while the disease remains pneumonic that it does so.

CONCLUSIONS

- (1) Primary pneumonic plague in all its stages is intimately associated with the bubonic variety.
- (2) When occurring as an original infection it is associated with a preceding rat epizootic in the same way as bubonic plague.
- (3) It rapidly tends to die out as such with or without being succeeded by a bubonic outbreak.
- (4) Its mode of spread is "direct" from man to man, but owing to the readiness with which rats become infected, it is liable to give rise to a rat epizootic which in turn gives rise to a bubonic plague epidemic.
- (5) It occurs usually and chiefly at the commencement of the epidemic season being chiefly confined to the first three months.
- (6) That as regards individual epidemics it is mostly present at the commencement of such outbreaks.
- (7) That in estimating the effect of pneumonic plague on the general spread of the disease its power of producing bubonic outbreaks requires to be taken into consideration.
- (8) That pneumonic plague plays a definite, though variable part in the specific septicaemia

called plague, of which, perhaps, it forms the expression of an unusual or "exalted" degree of virulence.

REMARKS

The above conclusions are of a somewhat *interim* nature, but if they should be confirmed by further experience it will show, I think, that it is possible to understate the influence of this form of the disease and incidentally the part played by man in the spread of plague.

Indeed its potentialities for evil are very great, the introduction of one case may be followed by the most serious consequences. Moreover, it is impossible to say where plague infection exists that it will not burst forth with unwonted fury as was the case to a large extent in London at the time of the Great Plague in 1665.

This does not seem particularly likely in India, but it is of interest to remember that the cases of plague (fortunately at present very few) that occur at intervals in Glasgow and Liverpool are of this variety. Moreover, it appears to me in regard to the question of the reappearance of plague in Great Britain that it is this form of the disease that it most likely to occur if unfortunately it should do so at all.

Finally, if I may hazard an opinion founded on the conclusion that pneumonic plague is an expression of an "exalted" degree of virulence of the plague organism, I would say that, a decrease in the prevalence of pneumonic plague is likely to be one of the earliest signs of the decline and final disappearance of the plague epidemic in India.

A Mirror of Hospital Practice.

A CASE OF PNEUMOCOCCIC PERITONITIS

By J. HAY BURGESS, M.B., F.R.C.S.,

CAPTAIN, I.M.S.

THIS man, a sepoy of the 7th Rajputs, had only just returned to Malakand from leave and was in the segregation camp when he was attacked by what was supposed to be ague on 14th September 1907. Pneumonia was diagnosed on 16th September 1907, and the man removed to a small ward and isolated. His medical history sheet shows two or three admissions for malaria since he came to this station on 8th November 1906. On one occasion great debility is also noted on his sheet. He was, however, a fairly well-built man. The notes will not be quoted *in extenso* to save time and space. Suffice it to say that the case was one of very severe pneumonia, the pneumonia process first starting at the left base and then affecting the whole of the left lung.

On the 19th, a suspicion of pericarditis was evidently raised in my mind, judging from the

following notes made on that day, pulse weak, rapid, low tension, easily compressed. Heart sound not heard, except now and then at the apex when the noisy breathing is not particularly obvious. Cardiac dulness on left side runs into that of pneumonic lung, on the right side it extends beyond the right sternal margin. Cardiac impulse not seen, pulse not that of "pulsus paradoxus." Difficult to say whether there is pericarditis or dilatation. The 5th space at the right edge of sternum does not appear dull to percussion. On this date also a note was made to the effect that "abdomen is somewhat tender and distended." Not much stress was laid on this note as, in my experience of the many cases of pneumonia occurring in the Malakand, abdominal distension probably from toxic paralysis has been fairly common and of no particular ill-omen if treated properly. On the next day, 20th, however, I noted as follows: "Peritonitis is probably present. Abdomen still distended and there is questionable movable dulness in flanks. The abdomen is tender and hard, but moves fairly well. Man quite delirious. Note tympanitic succough present. Retention of urine necessitating catheterisation, Pulse not of peritonitic character."

Not feeling justified in operating, the man was then given a continuous saline injection rectally, starting midday and continuing till late evening when it was discontinued, as I was afraid the sick attendants might not attend to the temperature of the water properly without supervision. This continuous injection worked with great success, the man receiving about a pint every hour and retaining it. The saline was given at about the temperature of 100° F. On the 21st a needle was inserted into the pericardial sac and a syringeful of yellowish cloudy fluid drawn off. Abdomen on this date was hard, distended and obviously tender. Face drawn and eyes sunken. As the man was then, however, obviously "in articulo mortis," nothing in the way of operative interference was attempted. Death occurred at 10 A.M.

Directly after death a small incision was made into the abdomen. The coils of intestine which immediately presented were not obviously injected. The appendix was felt normal. Some free fluid was noted in the pelvic cavity. This was odourless. A *post mortem* was not allowed. The following pathological examinations were made. *Sputum* (stained with C fuchsin and methylene blue) showed cocci, diplococci and bacilli of various sorts and forms, as also red cells and leucocytes. No tubercle bacilli. *Blood* (stained with Leishman's stain) showed no malarial parasites or bacteria. A polymorphonuclear leucocytosis was present. There was no especial increase in the eosinophile cells.

Pericardial fluid (removed *in vitam*, stained with Leishman's stain) showed diplococci, a few red cells and several dead and dying leucocytes.

Three test tubes were partly filled with all aseptic precaution with egg albumen, which was then coagulated in a sloping position.

Tube A was stroked with some of the man's blood, removed previous to death antiseptically.

Tube B was similarly stroked with pericardial effusion. These tubes were then put into a cupboard, the temperature of which was not allowed to fall below 22° C.

Tube C was stroked with some of the fluid from the abdominal cavity and also similarly incubated.

After 48 hours each tube was examined. No growth was visible on any.

Tube A—The surface of this, however, was scraped with a platinum needle and an emulsion made. From this emulsion slides were made. One was stained with carbo fuchsin, another with methylene blue, and a third with Gram's stain counterstained with C fuchsin. In all three there were present diplococci which retained Gram's stain. An attempt was then made to stain capsules after Welch's method. This proved a failure, perhaps, because acetic acid was used to fix the slide in place of glacial acetic acid. Diplococci and diplococci only were obtained from this tube.

Tube B—In this tube the albumen had liquefied somewhat and after 72 hours had become quite liquid like milk. Slides of this were similarly made and treated. But in addition to diplococci, staphylococci and streptococci, and a small bacillus showing bipolar staining were seen. This bacillus did not retain Gram's stain having the appearance of the plague bacillus and came as a shock to me as I had considered the case one of pneumonia plain and simple, and had allowed the sick attendants to go back to their lines. Probably, however, my bacteriological knowledge was at fault and they were not plague bacilli but extraneous bacilli, which had crept in through faulty technique.

Tube C—This on examination proved sterile. Why I am unable to say, unless it was, because it was incubated in the hot case of my bungalow one afternoon and left there overnight. The temperature of this hot case during meal times was considerably over 42° C, the maximum temperature of the pneumococcus. But whatever the cause no micro organism were isolated from this tube, although to all appearances the man was suffering from peritonitis. How much reliance can be placed on these experiments I do not know. I have not heard of coagulated egg albumen being used as a culture medium for pneumococci, nor indeed do I know that pneumococci can be cultivated from two drops of blood usually as much as 10 c.c. being necessary. But, be that as it may, here we have a definite case of pneumonia developing pericarditis and an insidious peritonitis. The presence of pericarditis is noteworthy as it is a sign of severe general infection (septicæmia) and is associated with most grave symptoms. And it

is stated that in such cases the local manifestations of peritonitis are obscured to such an extent as to prevent their recognition clinically.

In my decidedly restricted library I can find no mention of pneumococcic peritonitis. In my edition of Osler's *Medicine* it is ignored. Jensen, however, collected a series of 58 cases and some months ago a further series of 91 cases was reported in the *Lancet*. This case, I think, can be safely diagnosed as one of pneumococcic peritonitis. And especial interest attaches to it in that it seems to point to infection of the peritoneum through the blood stream and not by penetration of the pneumococcus through the diaphragm.

It has been definitely established by Ewing that in pneumonia in man the pneumococcus can be grown from the blood in every case. And surely this case, if any, was suffering from pneumococcic septicaemia with its complication of pericarditis, and *a priori* was one most likely to develop pneumococcic peritonitis.

A CASE OF VOLKMAN'S ISCHEMIC PARALYSIS OF BOTH FOREARMS

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LIEUT. I. M. S.,

Civil Surgeon, Satara.

A BOY of 13 was brought to the Civil Hospital, Satara, suffering from the above condition. Six weeks previously he had fallen from a tree and fractured both bones of either forearm about the middle of the shaft. Soon after the accident the arms were put in bamboo splints by the hospital assistant of a native State. The splints were not disturbed for three weeks, and were then removed owing to the occurrence of suppuration beneath them. The fractures had united, but at one or two places on either forearm there was necrosis of the skin and suppuration. The wrist and fingers were flexed and almost powerless.

Under treatment the sores healed, but there being no return of power in the arms, the boy was brought for advice to the Civil Hospital. Both arms presented a typical picture of Volkman's ischemic paralysis. The muscles were wasted and there were irregular scars on the flexor aspect of wrist and forearm. The finger nails were poorly nourished and round, some of them there was ulceration.

The wrist and fingers were semiflexed and prehensile power was very feeble.

The fingers could be extended only when the wrist was fully flexed. When the wrist was extended the proximal phalanges remained extended while the two distal phalanges were flexed, giving the hand a claw-like appearance. It was obvious that extension of the fingers was prevented by shortness of the flexor tendons. The condition was more severe in the right arm than in the left.

Operation was advised, but the father would not allow of this, so passive movement and massage with oil were recommended. The patient did not return.

My reasons for publishing the case are firstly, that there is, as far as I know, no other recorded case of the occurrence of this extremely rare condition in both arms, secondly, that Volkman's ischemic paralysis is not yet sufficiently widely recognised as a possible result of the faulty treatment of a fracture.

The condition was first described by Volkman in 1880, but it has attracted very little attention till the last five or six years. It is fortunately rare and in all only 59 cases have been recorded in the literature, although it is probable that a good many recognised cases have not been published. As the name implies the condition is due to ischemia of the muscles. In practically every case this results from the pressure of splints applied so tightly to a fractured limb that the blood cannot circulate through the muscles underlying the splints. The muscle being deprived of oxygenated blood passes very rapidly (after about six hours) into a state of contraction closely analogous to rigor mortis and the deformity above described results. The deformity becomes permanent as the result of fibrosis of the contracted muscles and in not a few cases a true nerve paralysis is superadded to the muscle lesion by the nipping of the large nerve trunks in the new fibrous tissue.

The condition has been produced experimentally in dogs by the application of splints and also by the temporary occlusion of the main arteries of a limb. Once contracture has been produced even immediate removal of the splints may not prevent it becoming permanent, for with removal of the pressure there is rapid congestion of the limb and among the degenerated muscle fibres there is effusion of lymph which becomes organised into fibrous tissue.

Almost all the recorded cases have occurred in children between the ages of 3 and 12. This is due to the ease with which a young child's muscles can be compressed and also no doubt to the liability to disregard a child's complaint of pain in a fractured limb which has been newly set. In all but two of the recorded cases the flexor muscles of the forearm have been involved secondary to fracture of the forearm or of the lower end of the humerus. Two cases of ischemic contracture of the flexor muscles of the leg, following fracture, have been recorded.

Treatment.—The development of the condition can always be prevented by the careful adjustment of splints, special care being taken to avoid undue tightness of dressings in fracture of the forearm or lower end of humerus. It is very often taught that in fracture of both bones of the forearm a special pad should be applied in front and behind so as to sink in between the bones of the forearm and keep them apart. The advantage of these pads is merely theoretical, and

there is grave danger that they will cause ischemia of the muscle. In every case of fracture the splints should be reapplied on the first symptoms of undue pressure, *eg*, excessive pain, swelling and discolouration, or the formation of blebs. If the ischemic contracture has developed, even although it be quite recent, it is not sufficient to merely reapply the splints more loosely, but daily massage and passive movement must be performed.

Once the condition of contracture and fibrosis is fully developed, treatment seldom gives a perfect result. Sayies has reported a case where cure resulted from massage and passive movement and the wearing of a mechanical apparatus. Most surgeons have failed to get a satisfactory result from this treatment and advise operation. The best results have been obtained by relatively increasing the length of the shortened muscles by excising a portion of the shaft of the Radius and Ulna.

Less satisfactory results are obtained by freely exposing the flexor tendons above the wrist and lengthening each individual tendon. The objections to the latter method are its tediousness and the danger of adhesions forming between the tendons and the skin and fascia. I have seen a case in which six months after tendon-lengthening resection of bone had to be performed.

In all cases where the nerve is compressed by the fibrous tissue it must be freed and a new bed made for it.

If the condition is so severe that the entire muscular tissue seems to be replaced by fibrous tissue, no operation is likely to give any relief. The amount of muscle tissue present can be estimated by the use of the galvanic current. The condition is very fully discussed by Alfred S. Taylor in the "Annals of Surgery" for September 1908.

A CASE OF DERMOID CYST

By SARODA PRASAD BHANJA, I L M S,

Khanakul

RAMANATH, Hindu male, aged about 45, came to Khanakul Dispensary on 31st July 1908, complaining of a tumour of the neck, which he said had first appeared some twenty years previously being very small at first, and had gradually attained its present size. It had been painless throughout, until about a week previous to his coming for treatment.

A tumour, about the size of a medium sized *bael* fruit, was situated on the back of his neck, below and behind the left mastoid process. It was fluctuating, so evidently contained fluid, and as it had recently become painful, presumably pus.

A long incision was made through the tumour, and a large quantity of pus was evacuated, mixed with which was a lot of short hair, like a handful of cropped hair on washing out the

cavity, it was found to contain three or four long hairs, whose roots were firmly fixed to the base of the tumour. Each hair was five or six inches long. The hairs were cut short, and the wound dressed with iodoform and boracic lint. The patient did not return to the dispensary, but on making enquiry it was found that he had got his wound dressed outside, and that it had healed within a fortnight.

Dermoid cysts do not appear to be common in India. I had never seen one before, and neighbouring practitioners, to whom I have described the case, also tell me that they have never seen a case of the kind.

A CASE OF ENCYSTED STONE IN THE URETHRAL PASSAGE

By J. C. GILLMAN, I S M D,

LIEUTENANT,

Civil Surgeon of Sambalpur

BHUBANSWAR, an Oorja, aged 22, was admitted into the Main Hospital, Sambalpur, on the 14th January 1909, with an encysted stone in the urethra. The history of the trouble dated back five years or thereabouts, when he noticed a small hard lump in the penis close to its root, which was causing an obstruction to the flow of urine, as there was not a complete stoppage, the current simply being narrowed, he paid little or no attention to it and allowed matters to proceed very much as they liked. As time went on the stone increased in size until it attained its present dimensions, latterly urinary trouble also became worse, burning and pain accompanied micturition, the urine appearing bloody after exertion.

On admission he appeared in fair health, bowels costive, appetite indifferent and patient anxious to be relieved. Local examination showed a large hard mass in the median line occupying the upper part of the scrotal sac—the scrotum moved freely over the lump which was moveable, the penis moving with it, an encysted stone was diagnosed and extracted through an incision $1\frac{1}{2}$ inch long in the median line, the stone which was of uric acid formation was in three pieces, the upper one fitting into a cup shaped cavity in the body and the lower but much smaller piece into a similar cavity below, the body was of large size and oval in outline, the whole weighing 6 drachms $1\frac{1}{2}$ inch long and $1\frac{1}{2}$ inch broad. The patient did well, the urine escaping through the wound for four days, on the 5th it passed partly through the meatus and partly through wound, on the 10th day the wound closed and he was discharged cured.

This seems to be a rare condition, text-books make no mention of calculi becoming encysted in the urethra and growing to the size this one attained. Would any of your numerous readers inform me whether they have met with a similar case in their experience.

Indian Medical Gazette.

APRIL, 1909

THE MEDICAL SECTION AND TUBERCULOSIS

WE conclude in the present number the publication of the series of excellent papers read at the January and February meetings of the Medical Section of the Asiatic Society of Bengal, on tuberculosis regarded from an Indian standpoint. Lt-Col Harris, Professor of Materia Medica, in opening the discussion, was able to speak from an experience of thirty years, of the great prevalence of the disease amongst the European, Eurasian and Native communities. From a carefully kept register he found that one-tenth of all cases admitted to the General Hospital during the two years of his residence were tubercular in nature. Further experience gained in the Medical College during the last ten years has thoroughly convinced him that tubercle in one form or other is one of the most common and most fatal of diseases in Calcutta and, if not actually on the increase, is certainly not decreasing. From the figures of cases of tubercular diseases of the lungs under Lt-Col Harris's care, he draws the conclusion that the conditions favourable to the development of phthisis amongst Hindus and Europ-Indian and Anglo-Indians are about identical, whilst the disproportionately large incidence amongst the Mahomedan class is very noticeable.

Dr Pease also brings out the greater incidence of tubercle amongst Mahomedans—specially the women—very clearly in his figures. This view is further supported by the figures furnished by Major Rogers, I M S, gleaned from the *post-mortem* records of the Medical College, Calcutta.

Major Rogers' analyses of the *post-mortem* records are of the greatest interest and throw much light on the remarkable prevalence of tuberculosis in Calcutta. About one-fourth or 25 per cent of all the bodies examined showed signs of tubercular infection, in 17 per cent of all fatal cases tuberculosis being the actual cause of death. Surgical tuberculosis of the bones, glands and skin is comparatively very much rarer than in temperate climates, which Major Rogers attributes to the extremely little tubercle in Indian cattle. On the other hand, intestinal complications are more common, and laryngeal less so, than in temperate climates.

Dr Gopal Chandra Chatterjee deals with the subject from a native Indian standpoint and along with other observers speaks of the great prevalence of tuberculosis and the increasing danger to the community of the insanitary habits of the people—specially from ignorance of the danger of spreading infection by promiscuous expectoration.

From his own experience Dr Chatterjee seems to think that the climate of the Darjeeling hills does not suit the people of Bengal—largely from the fear of catching cold in the cold air of the hills, compelling them to close every door and window of their residence.

Colonel Pilgrim's paper on the prevalence of tuberculosis amongst Europeans in Calcutta brings out very clearly how extremely common lesions due to the tubercle bacilli are. He considers the origin and spread of the disease is largely due to preventable causes, and that by patience and training of the people in the rudiments of sanitary principles it would be possible in a very short time to lessen the risk of infection and the spread of tuberculosis to those non infected.

Major Calvert, I M S, Civil Surgeon, Darjeeling, gives cogent reasons regarding the non-suitability of that station as a site for a sanatorium. One great insuperable difficulty to Darjeeling ever proving a suitable place for poor European consumptives is the cost of living which is far in excess of any other hill station in India and is steadily getting worse. So much is this the case that Major Calvert says it is cheaper to take a trip home than, for patients with moderate means, to come to Darjeeling. In his admirable reasoned note Major Calvert practically places Darjeeling out of count, among other reasons given he makes the important observation that phthisis is very prevalent amongst the resident population, who during the season are overcrowded to an extreme degree. Major Calvert thinks that Kalimpong would be a much preferable site to Darjeeling, there is far more room, the cost of living is not nearly so great and the rainfall is lower.

Major Deane, I M S, Civil Surgeon, Hazaribagh, thinks Hazaribagh would be suitable from October to May, so far as climate is concerned, but cannot recommend it very strongly for reasons of the great changes in temperature which occur, and on the score of the difficulty of obtaining fresh food and difficulty of transport. On the other hand, Revd Dr Hearn speaks optimistically

of Hazaribagh, but thinks Puri would prove a better site for Bengalis as they are very disinclined to keep the doors or windows open during the cold season. He thinks suitable sites for a sanatorium could be obtained on the hills skirting the Damodar Valley.

To sum up the ideas brought forward in the different papers read before the Section, the main points of interest are —

1 The prevalence of tubercular diseases in Bengal is so great as to make it far more important than any of the purely tropical diseases.

2 The number of *post-mortem* subjects in which healed and latent tubercle is found, show that the disease is often recovered from, so that under proper conditions of treatment in the early stages the present mortality is largely preventible.

3 That the only efficient means of treatment so far proved to be successful is that provided by properly organised sanatoria—the popular opinion that fresh air is all that is necessary being very far from the truth, and is really only one of many important factors, so that a well-equipped sanatorium which, in a short time, would largely pay its own way, is most urgently needed in India.

4 The general consensus of opinion would appear to be that there is no place in Bengal suitable for the treatment of tubercle all the year round, but that Almora appears to be of proved value and even with many difficulties to overcome has attained a large measure of success.

5 That such an institution outside its function as a means of treatment would serve the even more important one of acting as a centre for the spread of knowledge amongst the people of the necessary precautions that should be taken in order to prevent the spread of tuberculosis to those who are healthy.

The resolution passed at the meeting, pointing out the wide prevalence of tuberculosis in Bengal amongst both European and Indian communities and calling the attention of the Government of India and Local Government to the urgent necessity of providing a properly equipped sanatorium for the treatment of early phthisis, will meet with general approval and will be in sympathy with the views of the profession at large.

Major Delany's paper published in our March issue gives at first hand a clear idea of the

workings of a properly equipped sanatorium and the great beneficial effects likely to accrue from an institution or institutions of such a kind. We may safely conclude that Government would look with favour on proposals for the erection of buildings for the carrying out of the most recent methods of combating a disease that is computed to be the cause of death of over one seventh of the human race.

Before anything very much could be done, it will be necessary to get clear ideas of what is really required. The site or sites must be carefully selected after due consideration of the elements that go to render a site suitable, such as—climatic condition, sunshine, temperature, and facility with which good food may be obtained. Then the question of how many such places will be needed for the different classes of people. Lastly, the cost of such an undertaking will have to be met. We think Government should take some steps in this most important matter, and it appears to us the first thing necessary would be to appoint a small commission to make exhaustive enquiries regarding the many essential considerations that it is desirable to understand before anything can be seriously undertaken.

RECENT RESEARCH ON THE HEART'S ACTION

DURING the past few years much good work has been done on the study of the action of the heart, and a great deal of light has been thrown on the causation of many of those conditions of irregularity met with at the bedside. One of the most important of these discoveries is the significance of the peculiar tissue which, in its terminal filaments, seems closely to resemble the fibres described by Purkinje in 1845 and is continuous from auricle to ventricle through the more recently described auriculo-ventricular bundle of His. It was the custom some years ago to look on the cardiac rhythm as a function of the intracardiac ganglia, the beat of the heart being controlled and inaugurated by impulses arising in these ganglia. Gaskell was the first to lay the foundation of our true knowledge of cardiac rhythm. By a series of beautifully thought-out experiments he showed that the rhythm was an inherent property of cardiac muscle and independent of the intracardiac ganglia. The work of Kent, His and Tawara furnished the connecting link between

Gaskell's observations on the lower animals and its application to man by the further discovery of the direct muscular continuity between auricles and ventricles. This connection by a band of muscle has now been followed up in detail, and is looked upon as morphologically representing the invaginated portion of the primitive tube from which the mammalian heart is developed. These primitive fibres form the conducting strand along which the wave of cardiac contraction passes, and this wave without doubt arises normally at the junction of the great veins with the right auricle, where remnants of these primitive fibres are to be found, and which is in close connection with the vagus and sympathetic being thus well situated to be modified by impulses passing along those nerves. Further work by Hering, Erlanger and others has shown that it is possible to reproduce many of the forms of irregularity of the heart met with clinically through interference by pressure or clamping with the auriculo-ventricular bundle. A slight compression merely causes lengthening of the normal pause between the auricular and ventricular contractions. By increasing the pressure greater degrees of heart-block are produced—the auricles contracting twice, three or oftener to each ventricular contraction.

The practical importance of these discoveries on the elucidation of disturbance of the cardiac rhythm cannot be exaggerated. It offers a physiological and rational solution of many of the types of the irregularity of the heart's action, which are otherwise most obscure. One of the most interesting of these is the condition first described by Robert Adams of Dublin in 1827 and known as Stokes-Adams' disease. In this there is usually a normal auricular rhythm, while the ventricles beat very slowly, *re*, each auricular contraction is not followed by a ventricular contraction. Pathological enquiry reveals the cause very clearly in those cases that have been investigated,—the one feature common to all being interference with the auricular-ventricular conducting bundle.

Another interesting explanation of clinical importance that has been based on this work is the disappearance of the typical mitral presystolic murmur in advanced mitral disease, the explanation put forward being that as the auricle becomes more and more dilated, its stretching interferes with the passage of the contraction wave, so that instead of this wave starting at the junction of the great veins with the auricle,

it originates in the auriculo-ventricular bundle, and thus the auricles and ventricles contract simultaneously and not successively—the typical ingavescent presystolic murmur necessarily disappearing. Further, partial interference with the ventricular bundle may so lessen its power of conduction that the part of the bundle below the obstruction, which still retains its primitive power of initiating a contraction, may inaugurate an independent ventricular rhythm, thus producing the condition of extra-systole.

The bearing of these advances on the action of drugs in daily use for diseased cardiac conditions is of the very greatest importance to the practising physician and will require much careful work for its complete elucidation. Digitalis may be taken as an example of what we mean and of the danger of prescribing in cardiac affections a drug in daily use without a clear idea of what its effect may be. Digitalis, besides its vaso-constrictor effects on the blood vessels, and therefore its power of raising the blood pressure, has a most depressing effect on the conductivity of the remains of the primitive cardiac fibres. Mackenzie states that it causes delay and even stoppage of the transmission of the contraction wave from the auricle to the ventricle. Yet digitalis is frequently prescribed for a heart that is already failing because of the excessive pressure already present, and against which it is unable to work, it is therefore evident that in a condition of any involvement of the auriculo-ventricular bundle the depressing effects of digitalis on conduction is a strong contra-indication to its use. The safeguard to be observed in the administration of digitalis in heart disease would appear to be careful examination of the blood pressure and its estimation by the sphygmomanometer.

SUPERSENSITIVENESS TO SERUM-INJECTIONS

As the subject of sero-therapy is of importance to all medical men, it is of service to set out the latest developments of this branch of science, and of our knowledge regarding that most complex of substances—blood-serum. For long it has been known that the animal organism can and does create anti-bodies to combat the action of whatever foreign substances are introduced into it, and that these anti-bodies exist in the serum of the "immunized" animal, being formed by the white cells of the blood, among

others We know that these anti-bodies may be conveniently described as *lysins*, which cause a breaking up of the foreign substance, *agglutinins*, which cause the foreign substances, *e.g.*, bacteria, to clump together, and *precipitins*, which induce the precipitation of the albuminous elements of the foreign substance. We know too that it is not every animal of a species which is capable of undergoing immunization. Some individuals are absolutely refractory and never form anti-bodies, while others are refractory at one time and immunizable at another. And we also know that the blood serum of certain species is more poisonous for heterologous animals than that of other species, eel serum is excessively poisonous to all animals, while human serum may be given in large doses, and horse serum in comparatively huge doses, without any untoward effects following their injection. As horse serum is easily obtainable in large quantity, and is a very convenient vehicle for the introduction into the organism of an animal of antitoxins—these being introduced as a prophylactic or curative measure—our knowledge of its action is naturally more extended than of other sera. It has been found that very peculiar phenomena may be observed in animals treated with horse serum, phenomena which are referable to what the French have called *Anaphylaxie*, and the Germans *Ueberempfindlichkeit*, terms which we may best render by the word *super-sensitiveness*. It was discovered by Arthus and also by Theobald Smith, that when a dose of, say, 5 c.c. of normal horse serum is injected hypodermically into a rabbit with aseptic precautions, no bad results, local or general, will follow, nor will anything unusual occur after the next four or five injections made at six days' interval, but after the fifth or sixth injection the absorption of the serum at the site of injection will be manifestly more tardy than before, and after the next injection the part will show a thickening due to oedema of the tissues, this thickening persisting for weeks, but not tending to abscess-formation. If the rabbit receive another injection, the part will slough, leaving an ulcerated surface which will take a long time to heal. This tendency to sloughing had been noticed by many observers, some of whom were inclined to attribute it to the introduction into the tissues of this cytolytic in the horse serum, but this explanation did not fit the facts when it was found that if the first three or four injections of serum are made intraperitoneally and the others

are made hypodermically the same phenomena are observed. These phenomena are, then, the result of a systemic change. Again, it was found that if an animal receives a dose of horse serum and then a second smaller dose after 10 days, it will suffer from much dyspnoea, and may have convulsions and die within a few minutes, whereas if the second dose be given on the sixth or seventh day, and a third dose be given on the tenth day, no such symptoms of poisoning will appear. Experience has shown that this super-sensitiveness persists for months, and that a second dose of serum given so late after the first as on the 245th day will cause these symptoms to appear. It has also been found that no symptoms appear on the injection of a second dose of normal serum ten or more days after the injection of a dose of serum which has been heated to boiling point for an hour—coagulation at this temperature having been prevented by diluting the serum with three its volume of distilled water. And it has been found that if the blood of an animal A, that has received one injection of horse serum, be taken after the tenth day and injected into another animal B, symptoms of anaphylaxis will follow the first injection of horse serum made into animal B. It is, then, evident that in normal horse serum there exists a substance which provokes the formation of an anaphylactin in the serum of the animal treated, that this anaphylactin is slowly formed, being present in full strength only on the tenth and following days after the injection, that it is then transferable to another animal, and that its formation is excited by a substance which is rendered inert by boiling for an hour. *Post mortem*, the only appearances which are constantly found in animals that have died on receiving the second injection of serum are extravasations of blood at various points in the stomach and intestines, these extravasations being due to rupture of capillaries, the veins and capillaries of the viscera being markedly dilated. These appearances are, however, not specific, being found also in cases where death has been caused by the injection of hydrocyanic acid or chloral cyanhydride. As is to be expected, the phenomena of anaphylaxis vary with the individual, some individuals being but little affected, but so far we do not know to what cause this subsensitiveness to the action is due in these cases—in other words, it is only *ex post facto* that one can predicate of a given individual the fact of his proneness to super-sensibility.

Current Topics.

FURTHER LIGHT ON DENGUE OR SEVEN DAY FEVER

REGARDING the question of the differentiation of some of the Simple Continued fevers of the tropics Lt-Col But, R A M C, publishes a most interesting article in a recent number of the *Journal of the Royal Army Medical Corps*. It is important more particularly in connection with the contrary views that have been put forward by members of the I M S, regarding the condition variously described by Rogers as "Seven-day fever," Megaw as "Dengue" and others previously as "Three-day fever," "Calcutta fever," "Simple febricula, etc. Attention had been previously drawn to the wide prevalence of undifferentiated fevers in Malta, excluding all cases explained as trivial attacks of Malta fever, paratyphoid or typhoid, in 1907 no less than 548 cases were returned under the heading of "Simple Continued fever."

In October 1908, an important paper by an Austrian Army Surgeon, R. Doerr, appeared under the heading of "A New Invisible Virus." Doerr was appointed by the Austrian War Minister to investigate the condition described by Pick in 1886—a fever of three days' duration, accompanied by severe head and backache and pains in the lower limbs, sometimes vomiting and diarrhoea, sometimes with a polymorphous rash, present in the hot months in South Herzegovina and on the Dalmatian littoral, disappearing entirely in the cold season. It occurred amongst the troops during their first hot weather and had been a frequent cause of disability in the Austrian army. Doerr now publishes his preliminary report. In 35 cases he abstracted 10–20 cc of blood with which to make cultures—all proved sterile. Serum tests with typhoid, paratyphoid and Gaitner's bacilli were negative, no protozoa were found present. He therefore proceeded to experiment on man—justified by the fact that the infection never ends fatally.

Serum taken from patients in Herzegovina on the first day of the disease and despatched to Vienna, although it took three and-a-half days in transit, when injected hypodermically (5 cc) induced a typical attack eight and-a-half days later. A simultaneous experiment where 1 cc was injected resulted in an attack on the fourth day. Blood drawn forty-eight hours after the onset of pyrexia was no longer virulent.

He concluded, therefore—(1) that the virus circulates in the blood on the first day of the fever and that it is present in the serum,

(2) that the blood is no longer infective at the end of the second day,

(3) that the virus is resistant and retains its infectivity for three and a-half-days.

He then mixed the serum—taken from a patient during the first day of illness—with physiological saline and filtered half of it through a Berkefeld-Nordmeyer candle, and the remainder through a Reichel filter. The filtrates caused typical attacks of the disease when injected into soldiers stationed in non-endemic districts.

Doerr's researches should be read in continuation of those of Ashburn and Craig on 800 cases of dengue at Manila. These observers state no micro organisms can be demonstrated in fresh or stained blood specimens, blood cultures are sterile, the intravenous inoculation of dengue blood, either filtered or unfiltered, induces the disease in man—the cause is therefore ultra-microscopic. It is not contagious but is infectious in the same manner as yellow fever and malaria. Certain individuals are immune to dengue. Ashburn and Craig state that the common mode of transmission is by *Culex fatigans*.

Regarding the transmission of Doerr's new invisible virus, Taussig had noticed that stations at a high altitude were free from the disease and that fresh cases appeared only in the first seven days after transfer from an infected area, dissemination by contagion or through excreta was thus excluded. Taussig was inclined to attribute the diffusion to a species of diptera known locally as "pappatic"—a veritable pest during the hot months when the fever prevails. Doerr followed up this clue and after improving the methods of feeding and caging was successful in inducing the disease in four out of eight persons on whom infected flies had fed. He made the further important observation that, as in the case of yellow fever, the virus must undergo some development in the insect's body as bites were non-infective until eight days after sucking the blood of a patient suffering from the disease. This insect occurs in tropical and sub-tropical climates, it is found in Southern Europe and the Mediterranean, in Egypt, West and Central Africa, South America and India. Giles states, the genus *Phlebotomus* is most pestilential in the Himalayas during the rains and is equally troublesome in the plains. These additions to our knowledge of simple Continued fevers may go far to explain much of the short illness of uncertain origin so common in India during the wet season. In 1907, no less than 2,553 cases of this type appeared in the British army returns, entailing a loss of 36,600 days' service. Further, as will be readily observed by any one conversant with the literature of the subject, there is a close similarity between these conditions described by Doerr in Europe, Ashburn and Craig in Manila, several observers in India and recently by Rogers and Megaw in Calcutta. They all seem to have many points in common—so much so, indeed, that many of the most careful observers are inclined to look on the old disease, dengue, and the condition Rogers would separate under

the name of "Seven-day fever" as identical. Whether this be so or not an experimental investigation is a matter of economical importance. The loss to the Army in 1907 was 6,000 days' service in the Mediterranean and 36,600 days' service in India, not to take any account of the immense loss to the State from illness amongst Government servants and the civil population. A small monetary solatium would be sufficient to induce a number of individuals—fresh to the endemic area—to submit to inoculation, so that the etiology of the disease might be determined, rational preventive measures decided upon and considerable financial loss thus prevented. So far as our knowledge and methods at present go, it would appear to be the only line of research likely to lead to definite conclusions, and the only way of clearing up the obscure origin of one of the Short Continued fevers of the tropics. The importance of the investigations referred to is to show that the so-called Calcutta fever, Three-day fever, Seven-day fever, dengue or whatever names it has been classified under is not limited to Calcutta, nor is it confined to the sea coast, but appears to be fairly well spread over the whole tropical and sub-tropical areas of the earth, and, while in itself this is not conclusive of the identity of dengue and Seven-day fever, it affords a certain amount of presumptive evidence, from its more or less general distribution, that the condition originally described as dengue includes these, perhaps somewhat modified forms. It would appear, from the literature of tropical medicine, to be the tendency of the present age to differentiate between these types and honour each by raising it to the dignity of a separate and distinct disease.

In connection with this subject Dr Harold W Jones, of the United States Army, publishes a most interesting account of an epidemic of dengue in the Philippine Islands, in the *Boston Medical and Surgical Journal*, January 14th, 1909. He gives a series of no less than thirty-six temperature charts, which, leaving aside a few irregular types of temperature, may be divided into two main groups: the first comprises the cases showing an immediate rise to a maximum with a fall to normal or nearly normal, followed by a secondary rise and finally defervescence—the typical saddle-back chart of Seven-day fever; the second, in which the temperature shows no secondary rise, but a gradual and sometimes irregular defervescence. With regard to the second group, Dr Jones is of the opinion that the charts represent the secondary rise and final defervescence—the first portion having escaped on account of the patients' delay in reporting sick. In this opinion he is supported by Major Glennan, who had observed a similar condition in an epidemic in Texas. The description given of this epidemic bears a very close similarity to the condition described by Doerr in Austria, McCarrison in

Chitral, Rogers in Calcutta and admirably discussed by Megaw in our January issue.

A SUMMARY OF FURTHER RESEARCHES ON THE ETIOLOGY OF ENDEMIC GOITRE

By ROBERT MCCARRISON, M.B., B.Ch., Capt., I.M.S.,

Read before the Royal Society

(Communicated by MAJOR RONALD ROSS, C.B., F.R.S.)

THE object of the research was to determine by experiment on man, whether goitre was caused by matter held in suspension in goitre-producing waters, and to ascertain, as far as possible, the nature of the suspended ingredient which had been surmised to be responsible for the production of the disease.

Thirteen individuals, including myself, were given suspended matter, which had been removed by filtration from goitre-producing water, every morning before the first meal of the day. I and three others developed enlargements of the thyroid gland. The experiment was repeated in the case of eight individuals who were given the same suspended matter, which had previously been boiled for 10 minutes, in no case did any enlargement of the thyroid gland occur.

It is concluded from these results that goitre is due to a living organism of disease present in the water. The incubation period of experimentally produced goitre was 13 to 15 days.

It is thought probable that the organism of goitre exists as an intestinal parasite in goitrous individuals, since an intestinal antiseptic appeared to have a marked curative effect.

Experiments were made on monkeys to test the possibility of the spread of the disease by the faeces of infected individuals, with negative results.

Plentiful amœbic infection of the intestine was found in the majority of cases of goitre examined. It is not known, however, whether amœbæ have any relationship to the disease.

The research was carried out in Gilgit (Kashmir), and the results obtained refer only to goitre as it occurs there.

DR PAVY AND DIABETES

DR PAVY recently delivered before the Royal College of Physicians of London a very interesting course of lectures on the pathology and treatment of diabetes mellitus. Sugar, he considers, has been incontrovertibly shown to be present in normal urine. The negative reaction given with Fehling's solution is due to the presence of substances in the normal urine interfering with the copper suboxide precipitation. The amount of sugar ordinarily present in the blood stands, he believes, at about 1 per 1,000. In the healthy state the carbohydrates taken into the stomach do not reveal themselves either in the blood or in the urine, but if an animal is injected with as small a quantity as 1/4000th part of its body weight, sugar appears in the urine in a pronounced manner, running off, as it were, through the kidneys like running through a filter. In diabetes the carbohydrates reaching the stomach are followed with

the same result as on being intravenously injected and this constitutes the essential difference between health and diabetes.

According to Dr Pavy, the conclusion seems to be inevitable that the urine could not escape being affected by carbohydrate food in proportion to the amount ingested, if their transport took place in the form of free sugar through the circulation to the seat of utilisation in the tissues. He points out that in health there is marked disappearance of sugar at the seat of absorption in the digestive tract and that what escapes is transformed into glycogen in the liver. The difference between health and diabetes is that in health the sugar molecules become built into a newly formed protein complex and in this state are carried within the lymphocytes into the circulatory system. What next occurs is that the lymphocytes undergo autolysis. Locked up in the protein constituents of the blood, the sugar molecules derived from the food are placed in a position to be transported from the seat of absorption to that of utilisation without running off with the urine. He suggests that it passes off in the form of a side chain linked on to a large molecular constituent of the blood. What is wanted for transport service is that the carbohydrate should be loosely linked on to the carrying molecule so as to be susceptible of being disjoined without involving the disruption of the molecule itself. That the existence of carbohydrate in a loosely combined and in a firmly locked up state in a molecule is no mere hypothesis is capable of being made manifest by what is seen when amygdalin is exposed to different kinds of enzyme action. A molecule of amygdalin has two molecules of carbohydrates within it. When subjected to the action of glucose, a molecule of glucose is split off without the production of any further effect which means that the other molecule is left untouched. In contact with emulsin both molecules are liberated, with benzoic aldehyde and hydrocyanic acid as associated products. The conclusion is that the two carbohydrate molecules within the amygdalin molecule are differently placed: the one is in a position to be easily detached without leading to other disturbance, while in the case of the other, its liberation involves molecular disruption as an attendant phenomenon.

A study of the effects of phloridzin also points in a very decisive manner to the existence of carbohydrate within the molecular complex, as a side chain attachment on the one hand, and in a locked up state in the nuclear centre on the other. It goes further and gives grounds for associating the side chain attachment with transport service, leaving the locked up portion as constituting a component incorporated during the construction of the molecule whether in lymphocyte growth from food or in bioplasm growth elsewhere.

Pavy points out that an analogous behaviour is traceable between carbohydrate and fat in their connection with bioplasm. He states that fat may exist in a locked up state in like manner to what occurs with carbohydrate. The bioplasmic molecular complex which may be regarded as the representative of a living unit and as the seat of the metabolic changes which give rise to the phenomena of life, contains both carbohydrates and fat incorporated with it. Through intramolecular action set in motion by agencies of an enzymic nature the various occurrences noticed to ensue may be conceived to be brought about. In the molecule the oxygen is brought into close relationship with the carbohydrates and fat components and the interactions occurring give rise to the development of energy.

According to him something derived from the pancreas is apparently concerned in contributing to the normal metabolism of the carbohydrates. The pancreas supplies amboceptors which by effecting the attachment of the sugar molecule to the bioplasmic molecule place it in a position to be disposed of, according to the existing environment. It may undergo oxidation and disappear with the liberation of energy. It may become trans-

formed into glycogen. For this it must be conceived to pass in the first place into bioplasm in the same manner as the hydrolyte is conceived to pass into union with the enzyme preparatory to being converted into another form. Or it may be transformed into fat by a process analogous to that of transmutation into glycogen. The action is comparable to that of a ferment in so far that a body enters in one form and is thrown off in another. The amboceptor derived from the pancreas normally exists in the blood. Pavy looks upon the leucocytes of the blood as one of the agencies concerned in the primary metabolism of carbohydrate matter. Leucocytes are little masses of growing bioplasm. They admittedly feed upon the material that may chance to be present in the blood and in this way extrinsic nutrient matter that may happen to reach the blood incidentally may be appropriated and built into bioplasm, which like that of the lymphocytes may pass by autolysis into the blood proteins.

Carbohydrate in the amylose form that is obtainable from blood is due, according to Pavy, to the action of the pancreas.

There is not a particle of evidence to shew that defective oxidising power exists in connection with diabetes, as has been suggested by some. The real fault is a condition antecedent to the oxidising operation. The food carbohydrate, when permitted to reach the general circulation in the form of free sugar through failing to be assimilated, cannot do otherwise than run off with the urine and then escapes being placed in a position to undergo oxidation.

Dissociation of carbohydrates into sugar occurs in association with the pathological state in the severer form of diabetes, viz, the composite variety. Here the eliminated sugar is derived from a two fold source. It comes in part from defective assimilation of the food carbohydrate and in part from the carbohydrate which has been previously put into combination and is from a wrong katabolic action dissociated. There must be a flaw of some kind or other in the bioplasmic mechanism to lead to this dissociation of sugar. When the normal katabolic procedure passes on to its proper destination, metabolism proceeds to the attainment of an exhaustion of the latent energy contained in the foodstuff products that are being utilised and the end products consist of carbon dioxide, water and ammonia. In composite diabetes the chain of continuity in the bioplasmic mechanism is broken in a manner that leads to the dissociation of sugar. This molecular disruption stands in the position of a reversed, natural action. In a purely elementary case of diabetes, sugar, however, may pass into the urine even under a properly restricted diet for diabetics, as meat contains a limited supply of carbohydrates, and also contains locked up carbohydrates in its protein ingredient. Thus, in some cases of diabetes without the co-existence of associated elimination of the acetone series, after a large quantity of meat taken at a meal, there has been a show of sugar in the urine, whilst after a moderate quantity there has been none.

Allied to the sugar elimination that has its source in a wrong breaking down of the bioplasmic molecule may be classed the elimination of the acetone series of bodies. The agents producing the acidosis are β oxybutyric acid and diacetic acid.

β oxybutyric acid is probably derived from the normally occurring fatty acids. Elimination of sugar and oxybutyric acid are both due to a faulty molecular breaking down. The two seem to stand in a parallel position, carbohydrates in the sugar elimination and fat in oxybutyric elimination. Fat is a constituent of the bioplasmic complex, and as sugar is thrown off by wrong katabolism, so also is oxybutyric acid. In the abnormal dissociations already spoken of, the product thrown off is of a diffusible nature, and therefore incapable of being retained in the system. Hence the elimination of both the sugar and the oxybutyric acid with the urine. Both of them are produced by an intra-molecular error. There can be no doubt that individuality has much to

answer for, in connection with the supervention of the acidosis condition. With a sensitive, highstrung nerve organisation, there is a proneness to the appearance of acidosis. In persons of a worrying nature its greater liability to shew itself gives an increased gravity to this class of case. Acidosis condition is susceptible of being evoked by absence of food apart from diabetes. Deprivation of carbohydrate alone suffices to act in a similar way. Generally at an early stage of diabetes the effect of putting the patient on restricted diet is not attended with the production of an appearance of the acetone bodies. At a latter stage in a case where the dieting has not been carried out in a proper manner, and where sugar has been all along voided, the effect of cutting off carbohydrate food may be expected to lead to a certain amount of show of the acetone bodies. Afterwards when as a result of the dieting the sugar is reduced and subsequently removed, the acetone bodies may also in the course of a little time be counted upon to make their disappearance. Pavy points out that if the maxim of those who prohibit the cutting off of carbohydrate food in acidosis were acted upon, diabetics would stand in a very bad position. According to him, the way to get rid of the acetone bodies is to bring the sugar down, and if this is not done, all that can be looked for is that they will go on increasing. The sugar in the system by its toxic influence may be regarded as a main factor in causing the acidosis, in the first place to set in and then to grow. In extreme cases, however, the sudden withdrawal of carbohydrate may lead to increase of the acidosis, and therefore in such cases judgment should be exercised in connection with the course of the dietary to be adopted.

Regarding the treatment of diabetes, Pavy points out that mal assimilation of carbohydrate food is the error existing in diabetes and what is wanted to be effected by treatment is the restoration of the defective assimilative power. It is necessary for the attainment of this object to reduce and remove the sugar that is acting perniciously by traversing the system. By maintaining a sugar free state of urine, Nature steps in and starts mending what is wrong by reinstating the assimilative power. When a case falls under observation, everything depends, with respect to capacity for and speediness of restoration of assimilative power, upon the extent to which the disease has become developed. If only of recent onset, a few days may suffice for the removal of sugar, and, shortly after for signs to present themselves of returning power. When the setting in of restoration of carbohydrate assimilative power will occur, cannot in any case be predicted. It may be within a few weeks or a few months or it may be delayed for a few years. The return of assimilative power under a carbohydrate free diet is shewn by a fall in weight and a bodily feeling of sinking or food want. As long as there is no return of assimilative power, the restricted diet suffices to meet the requirements of the system and a proper state of equilibrium exists within. Not so when restoration of carbohydrate assimilative power has taken place. Here the restricted diet, as in the healthy person, fails to meet the demands of life and Nature reveals it through the signs that have been referred to. These revelations associated with sugar free urine may be safely read as meaning the setting in of returning assimilative power and that action should be taken accordingly. The action needed is the supply at first of a limited amount of starchy food. The urine immediately tells the tale, if too much is given. Afterwards the starchy food must be increased as the restoration of power advances.

As regards the treatment by means of drugs, nothing by itself exerts a direct and immediate arresting influence over the elimination of sugar. Opium and some of its derivatives, however, help in promoting the restoration of carbohydrate assimilative power. Science ought to, sooner or later, put us in possession of something which will set right the defective metabolism that is present in diabetes. Such a substance will be

allied to the thyroid extract that sets right the faulty metabolism in myxœdema.

LATENT BACTERIA OF THE BODY

DR L DUDGEON in the Horace Dobell Lecture delivered before the Royal College of Physicians (*Lancet*, 5th December 1908), discussed in detail some of the recent advances in bacteriology with regard to the power which pathogenic micro-organisms possess of lying latent in the tissues without disturbance to the host, and yet capable at any time of exciting inflammatory reactions or leaving the infected person to set up active disease in others. As has been known for some time, the different animal species have their own peculiar bacteriology. Most of the domesticated animals harbour bacteria in their internal organs. The tissues of the human foetus are usually sterile, but in children and adults bacteria are found in various parts of the body. So that soon after birth, infection takes place which persists throughout life. It is to this infection that many acute and chronic inflammations are to be attributed.

Dr Dudgeon and Mr Sargent investigated the skin, ligatures and tissues in connection with aseptic wounds in St Thomas's Hospital, of 45 cases treated without chemicals. The wound surface was sterile on 26 occasions only, the skin cut from the edge of the wound at the conclusion of the operation was found to be sterile 6 times in the 45 cases. The staphylococcus albus was the most common organism found. Furunculosis is another example of auto infection—the staphylococcus pyogenes aureus of the tissues becoming active and exciting local inflammation and suppuration.

The bacillus coli is coming more and more under suspicion. It is a normal inhabitant of the intestinal tract, but at the same time it is the most common organism met with in peritonitis, specially of appendicular origin. So much is it now feared by surgeons that some vaccinate with this organism a few days before operation. In the urine the bacillus coli is often met with without any signs of inflammatory disturbance, yet, at any time, it may suddenly for no known reason produce the most violently acute infections of the kidney tissue, ureter, bladder or even septicæmia. It may often be met with in such numbers in the urine as to give rise to the term bacilluria without even causing a slight pyrexia, while, in other cases, it is capable of initiating conditions which are clinically indistinguishable from typhoid and can only be diagnosed bacteriologically or by the effects of vaccine therapy.

In connection with these advances considerable interest has been given to the question of "typhoid carriers." It has been estimated that typhoid bacilli may be isolated from the faeces of a patient suffering from typhoid fever in from 25 to 30 per cent of the cases in the first three

weeks, from 10 to 15 per cent in the next two months and that some 3 or 4 per cent become regular carriers. Further, those who never had any illness typical of typhoid fever may have bacilli of the typhoid, para-typhoid group in their faeces and form a source of infection — (*The Medical Review*)

THE ANNUAL SANITARY REPORT

THE Government of Burma have issued detailed instructions concerning the preparation and transmission of material for the Annual Sanitary Report. They are drawn up separately for municipal and for rural areas, under several headings. These include —

- (1) Registration of vital statistics
- (2) Sanitation—special information about water-supply, drainage, and conservancy of the larger towns will be supplied
- (3) Prevailing diseases—especially such diseases as are endemic will be discussed
- (4) Epidemic diseases and measures taken to combat them

Forms have been drawn up to be filled in by the officers concerned which will give the information required

INDIA AND THE PARIS SANITARY CONVENTION

THE Government of India republishes a notification of the adherence of India to the Paris Sanitary Convention of 1908, subject to certain trivial reservations. The only one of any importance being, that the provisions of the Convention in respect of plague only shall apply to India, the provisions of the Paris Convention of 1894 continuing to apply as regards cholera.

The full provisions of the International Sanitary Convention of Paris, 1903, with appendices are published for the information of officers concerned.

The Government of India accept no responsibility in respect of British ships carrying pilgrims from ports in the Persian Gulf towards the Hedjaz.

CALMETTE'S TUBERCULIN REACTION

CALMETTE'S ophthalmic test for tuberculosis has attracted considerable attention since its introduction in June 1907.

It is claimed for it that it is reliable, easy of application and harmless, and therefore a great improvement on the older methods. In a paper read before the Manchester Pathological Society, Dr C C Heywood gives an analysis of 127 cases in which the test was made use of. His conclusions are —

- (1) It is easy of application
 - (2) It is harmless if a weak solution is used
- The solution originally suggested by

Calmette was 1 per cent. This he found frequently caused excessive inflammatory reaction and even a 5 per cent solution often proved too strong. He now always uses a 1 per cent solution with quite satisfactory results.

- (3) The test is by no means infallible, but it is a most valuable help to diagnosis and, in the majority of cases, it gives a true indication of the presence or absence of tuberculous disease. He considers that the negative result is more reliable than the positive and, except in moribund cases, a negative reaction may be taken to mean the absence of active tuberculosis.
- (4) A negative result in an obviously tubercular condition is a very bad prognostic sign.
- (5) Fifty per cent of his cases of chorea gave a positive reaction. In a few early phthisis had been present, but the bulk of them showed no signs of tuberculosis.

FRESH AND BOILED MILK FOR CHILDREN

WE make no excuse for a short reference to this important subject. Investigations into the bacteriological properties of milk carried out by Evans and Cope, of Philadelphia, raise points of great interest to every practising physician. Briefly, these observers showed that even moderate heating of milk destroys or impairs its bactericidal properties, raw unboiled milk possessing such to a considerable degree. Pasteurised or sterilized milk on becoming contaminated, furnishes a much better medium for the growth of organisms than ordinary untreated milk. In India, where milk is always boiled and often reboiled by the careful mother or nurse for children's use, we have not only the bactericidal powers of the milk destroyed, but the antiscorbutic element also. We have seen many examples in children of the ill-effects of the boiling of milk, and the sad part of it is, that these cases usually occurred in children, whose mothers were devoted to their care and spared themselves no trouble to do what they considered for the benefit of their offspring.

If mothers and parents generally would only take the same amount of trouble in providing fresh, clean and pure milk, which could be given unboiled, they would be rewarded to a very great extent by the marked improvement in the health and looks of their children. We know that in India the giving of unboiled milk to children is a doctrine that will be received with much prejudice, even by physicians, but we can thoroughly recommend it being given a fair trial when a child is obviously not doing well, and indeed, we believe every child would be much better off if fed on pure, fresh unboiled milk.

The method is simple and easy to carry out if only a little trouble will be taken at the outset to initiate and familiarise the servants with the new conditions. All that is required is to take the necessary steps to have the cow's udder and parts around thoroughly cleansed with soap and water, gwalla's hands and arms also carefully washed—preventing him from drying them on his dirty clothes which he is usually very anxious to do. The first few ounces of milk obtained should be caught in a separate vessel, thus getting rid of any likely contamination, and the pure fresh milk collected in a properly sterilized vessel. If this routine be carried out a few times, both cow and gwalla get quite accustomed to the process, and neither make any further objection.

The pure milk so obtained should be covered and carefully preserved from all sources of contamination, and this may be used fresh and unboiled. Of course, a specially selected healthy cow is a necessity—protection from tubercle being thus obtained.

A responsible person, mother, nurse, etc., must see this routine carried out every time milk is obtained, and must always sterilize the vessel in which the milk is collected, giving it to the gwalla only immediately before he begins milking.

"PLAGUE IN CALCUTTA AND THE FLEA THEORY"

At the Society of Tropical Medicine and Hygiene on December 18th, Dr Hossack gave the result of his investigations into plague conditions in Calcutta, which may briefly be summarized as follows—In Calcutta the plague-infected rat is *Nesokia bengalensis*, *Mus decumanus* comes next, while *M. rattus* may be left out of count. As in Bombay the rat-flea is *Læmopsylla cheopis*, but neither this nor any other kind of flea has been found in plague-houses, unless exceptionally and in insignificant numbers. Whereas in Bombay 275 guinea-pigs collected 4,681 fleas, in Calcutta 149 guinea-pigs collected only 164 fleas, and not a single guinea-pig contracted plague. The fleas obtained were carefully observed, and it was found that when not starving they would hardly bite man at all, and did so only occasionally when starved, even when the period of starvation had lasted for eight days.

Dr Petrie in his paper gave the following reasons for adherence to the rat flea method of infection of 18,000 rats infected with plague: not one was found to have a primary mesenteric bubo, and therefore the conclusion is justifiable that naturally infected rats derive the infection otherwise than by feeding. Against this the possibility of infecting rats by feeding cannot be said to have weight, as so very few naturally infected rats show mesenteric lesions. Of naturally infected rats only 0.6 per cent show definite lobar pneumonia. Of rats artificially infected by having the feces of plague rats intro-

duced under the skin only 3 per cent died of plague, and as even when there are 100 millions of microbes in a c.c. of its blood, a plague rat may have none, or at most less than 10 in each c.c. of its urine, it may be concluded that excretation is not a very active factor. The regional distribution of buboes in naturally infected rats and rats experimentally infected by fleas is the same, etc. He states that the presence or absence of mesenteric buboes in infected rats in Calcutta should be determined—and that until this has been done in at least 1,000 cases, no conclusions of value can be drawn by Dr Hossack.

THE SPEED LIMIT OF THE HUMAN HEART

THE speed limit of the human heart is the subject of an interesting communication from Dr Hertz and G. W. Goodhart, who have had under treatment in Guy's Hospital a woman in whom, for over a year, the auricles and ventricles seem to have been working in complete dissociation. Continuously for that space of time the auricles have contracted at a speed varying between 216 and 236 times per minute. The determinations are founded on jugular tracings controlled by X-ray observations of the right auricle and by inspection of the retinal veins, and there is no reason to suppose that they are not accurate. During the same period the ventricular systoles have been, during rest in bed, about 80 to the minute, though their number can be easily increased by exercise or atropine to 120 or more. The auricular contractions, *per contra*, are absolutely unaffected by drugs, posture, or work, and are most commonly 234 per minute, without variation during long periods. The authors consider from the clinical history of the patient, who is a woman of thirty-eight years of age, that she had an attack of endocarditis following scarlet fever in youth, and resulting in mitral stenosis, and, further, that the vagal terminations in the walls of the auricles must have been totally destroyed and all vagus control thus lost. They proceed to advance the interesting speculation that, for this patient at least, the speed limit of the human heart is 236 beats per minute, by which they mean the most rapid rate of contraction which can be kept up for long periods. They do not think that any rate in excess of this can be maintained more than temporarily, though allowance for individual variation must be made. They also criticise any record of cardiac contractions in excess of 200 per minute, unless proved by tracings.

PARISIAN SURGEONS AND FREYER'S TRANS- VESICAL PROSTATECTOMY OPERATION

AN interesting discussion took place at a recent meeting of the *Société de Médecine de*

Paris upon the value of the operation of prostatectomy. The surgeons were almost unanimous in acclaiming the highly satisfactory results obtained by Freyer's operation—that is the transvesical prostatectomy. M. Georges Luys, in summing up his views on the question, may be said to voice the opinion which is generally held by surgeons at the present time. He contended that in regard to the indications for prostatectomy all patients who suffer from retention of urine should submit to operation, provided they are not cachectic and their renal functions are sufficient. Patients who have to submit to repeated catheterisation are always in danger, and some slight mistake can easily lead to the most severe complications. He maintained, therefore, that it is the duty of the surgeon to free the patient as soon as possible from the use of the catheter and to propose operation. With regard to the choice of operation the transvesical is much to be preferred to the older perineal method. The prostate can be removed in its entirety and there is no fear of recurrence of the trouble. Other surgeons similarly dilated on the constant possible attending dangers of catheter life and the desirability in consequence of advocating operation whenever the condition of the patient rendered surgical interference justifiable.

CATERPILLAR URTICARIA

In the *Archiv F. Schiffs-und Tropen-Hygiene*, No 3 of 1909, Bleyer refers to cases of painful urticaria caused by contact with the caterpillar of one of the Bombycidae, which lives on the *Smilax Sarsaparilla*. The caterpillar is 6.5 cm long and 1 cm broad, coal black with the entire upper surface covered with bristles. These are arranged in groups of 10–12, the groups being arranged in six principal rows. The groups are branching tubes, whose end is in a needle-like structure, quite distinct from the bristle tube itself. The bristle tubes on section yield a sticky yellowish green fluid, rich in cells.

Similar stinging-apparatus are found in caterpillars which live on a *Lonicera* and on *Citrus aurantia*.

Contact with the caterpillar causes the poison, which is very volatile to penetrate the skin, whence it is carried to the nerve-endings and from these to the nerve trunks and central nervous system. Locally one sees an urticarial eruption, with neuralgic pains, which may be felt in the face even when the finger is the seat of the local symptoms, also changes in the pupils with slight fever and vomiting may be observed. Treatment should be local—an ether, chloroform, menthol lotion and general, gentle stimulation.

The symptoms remind one of what occurs in cases of contact with *Primula obconica* and *Rhus toxicodendron*.

WE note with pleasure that Messrs Nestle and Anglo-Swiss Condensed Milk Co have been awarded a gold medal at the recent Central Provinces and Berar Exhibition held at Nagpur. We are informed that the firm's exhibits of Nestle's milk chocolate and Peter's milk chocolate found so much favour with the visitors that they ran entirely out of stock. For the first time in India preparations, such as coffee and milk, cocoa and milk, chocolate and milk, and also Nestle's cocoa were introduced at the exhibition by this Company.

SPECIAL ARTICLE

DETERMINATION OF AGE IN THE LIVING *

By M. K. AIYAR, M.D.,

Madras

THE subject of this paper is of very great importance from a medico-legal point of view. A medical man may be asked to determine the age of a person for purposes civil or criminal. Thus, a child under seven years of age is, in the eyes of the law, incapable of committing a crime. In Great Britain when the child is between seven and fourteen years of age, a guilty or malicious intent must be proved by evidence. In India, a child between seven and twelve years of age is considered to be capable of committing a crime only if it has developed a certain degree of understanding. Carnal knowledge with a girl under twelve years of age constitutes the crime of rape. Removal of a child under sixteen years from the lawful custody of parents or guardians, constitutes the offence of kidnapping. A person cannot, in the eyes of the law, administer his property, contract a debt, make a will, alienate his property, or serve on the jury unless he has attained his majority, which, in Great Britain, is on his attaining his twenty-first year, and in India, on completion of his eighteenth year. Then again, the question of age is of importance in connection with certain kinds of employment. No child under seven years can be employed in a factory, and children between seven and twelve years cannot be allowed to work for more than nine hours a day, with an hour's rest, and four holidays in a month. In all these cases the exact age, even within a margin of one day, will make much difference. Thus, carnal knowledge with a girl who is only eleven years and 364 days old constitutes the offence of rape, punishable under the Indian Penal Code. But if it can be proved by documentary or other reliable evidence that the girl was eleven years and 366 days (and 367 days in a leap year), *i.e.*, twelve years and one day, there is no offence.

* Paper read at South India Branch of B. M. A.

Having stated for what purposes the determination of age is necessary, I shall now briefly tell you how I thought of this subject for a paper to be read before the Branch. This will also illustrate the importance of this question. In September last, there was an alleged case of kidnapping of a Hindu girl by a missionary lady. The case excited a good deal of sensation, both in Madras and outside. The prosecution produced a horoscope to show that the girl was under fifteen years of age, and, learning that the defence was going to disprove the genuineness of the horoscope by means of medical evidence, called in two medical men as expert witnesses on the question of age. These medical men stated in their evidence that the determination of age in a living subject was, if at all possible, helped by the order of eruption of the teeth, that the second molar tooth appeared between twelve and fourteen years, and that the next tooth to appear, viz., the wisdom, usually made its appearance between eighteen and twenty-five years, and that therefore there were no scientific data for determining the exact age of a living person accurately between the ages of fourteen and eighteen years and that any attempt to fix the exact age during that period must be only a matter of guess-work. The defence cited two other medical men as witnesses on their side. These two defence medical witnesses stated that they did not agree with the prosecution medical witnesses about 'guess-work' and that there were various tests for age. Among these, they mentioned the teeth, the bony and muscular developments, development of the sexual organs, and, very often, the general demeanour and appearance. They said that all these, taken together and not singly applied, assist one in arriving at the age. One of them further stated that a doctor without experience must be in the same position as a layman. He further talked of greater development and expansion of the chest in a girl of eighteen than in a girl of fifteen, that the general configuration of the head would be much thicker in a girl of eighteen than in one of fifteen years, that the tone of the muscles also would be much greater at eighteen than at fifteen years. Both of them said that, as a result of the application of all these tests, the girl must be over eighteen years of age.

Fortunately for the defence, neither the prosecution medical witnesses nor the vakil who had instructions from them were present that day to cross-examine the defence medical witnesses, so the evidence of these two gentlemen was let go unchallenged.

The Chief Presidency Magistrate, who tried the case, discharged the accused, and in the course of his judgment made the following observations: "The evidence of the medical witnesses on the prosecution side was hardly of a nature to assist the Court in arriving at any satisfactory conclusion, as the same did not give the Court that knowledge and assistance which the Court

might expect from medical men who had been so long engaged in practice. These medical men had stated that the only two scientific tests for arriving at the age of a person were absolutely unreliable. It was surprising to hear these medical men say that their opinion as to age was a mere guess." He further observed that "the evidence of the defence medical witnesses was, unlike the evidence of the prosecution, convincing, that one of these defence medical witnesses gave a positive conclusion, after carefully examining the girl and applying collectively all the scientific tests possible, and that that witness told the Court that opinion as to age was not a matter of mere guess." This case clearly shows how much even educated men, and men of culture, expect from us medical men on the question of age. The sooner we disabuse their minds, the better it will be for us.

Now to the subject proper. Various tests have been mentioned by writers on medical jurisprudence as assisting one in determining age. Now, the first and the most important is the time of appearance of the teeth. As you all know, there are two sets of teeth, viz., the milk, or temporary teeth, and the permanent teeth. The usual order of appearance of the milk teeth, which are twenty in number, is as follows —

Lower central incisors	..	6th to 7th month
Upper " "		7th to 8th "
Upper lateral incisors		7th to 9th "
Lower " "		10th to 12th "
First molar		12th to 15th "
Canines		15th to 20th "
Second molar		20th to 30th "

The milk teeth do not appear at the same age in all infants. Some are born with the incisors above the gum, while others have no teeth until two years.

Now the usual order of appearance of the permanent teeth is as follows —

	Powell for Natives of India	Saunders	Pedley	Grey	Mann
	Year	Year	Year	Year	Year
First molar	6th to 7th	8th	6th	7th	7th
Central incisors	7th	9th	7th	7th	8th
Lateral incisors	8th to 9th	10th	8th	8th	9th
Canine	10th to 13th	18th	11th to 12th	11th to 12th	11th to 13th
Ant. premolars, or bicuspid	9th to 10th	11th	9th	9th	10th
Post. premolars	10th to 12th	12th	10th	10th	11th to 15th
Second molar	11th to 12th	13th to 15th	13th	13th to 15th	15th to 16th
Wisdom	14th to 27th	18th to 25th	17th to 25th	17th to 21st	18th to 30th

Thus we see that the permanent teeth do not appear at such fixed ages as to enable us to determine the exact age of a person by the appearance of the teeth. Guy and Ferriar, in their book, state that, with a view to employing the table of eruption of the permanent teeth as a standard of comparison for determining the age of children, especially those employed in factories, Sir E. Saunders selected the two periods of nine and thirteen years, and found that rather less than half the boys and more than half the girls, and as nearly as possible

half of the two sexes taken together, had the full complement of teeth. The wisdom tooth is sometimes known to appear very late in life. Dr. Hamilton is said by Guy and Fenner to have recorded the case of a man of eighty years who died from irritation produced by cutting the wisdom tooth. Rickets has a tendency to delay dentition while congenital syphilis, or mercurial treatment for syphilis, is said to hasten dentition. Thus it will be seen that the teeth which are said to be of much help in the determination of age, really do not help us much in determining the exact age.

Now the other tests usually mentioned are (1) hair on the pubes and axillæ, (2) the relation between height and weight, (3) breast development in girls, (4) degenerative changes, such as wrinkles, grey hair, arcus senilis, and change in the angle of the lower jaw, and, (5) the ossification of centres in bones. We shall now take these separately.

The relation between height and weight is too variable to be of any value. The hair on the pubes and axillæ usually appears about the tenth or eleventh year. But the time of appearance varies so greatly in different people that it cannot be taken as a standard for determining age. The development of the breasts in girls also varies greatly, as also the development of the sexual organs. Lyons states in his book that Dr. Powell had cited the case of a child of four years, who menstruated once in six or eight weeks. In the *Post Graduate* (a monthly journal of medicine and surgery, published at New York) for June, 1907, there is a photograph of a girl of three years who began to menstruate about her seventh month of age. She is said to be menstruating at intervals of twenty-eight days, and to present enlarged breasts, sexual characteristics and bodily configuration and hair on the pubes and axillæ. She is also said to have developed sexual instincts lately (*The photo of the girl was circulated*). You all know that various circumstances, such as previous health, family peculiarities and the mode of life of the individual have a good deal to do with the development of the sexual organs.

The degenerative changes, such as wrinkles, grey hair, arcus senilis and change in the angle of the lower jaw, cannot at all be relied upon as helping us in determining age. Mental worry brings on wrinkles and grey hair very early in life. Family peculiarities also have a good deal to do with the appearance of grey hair. Some people get arcus senilis as early as thirty-five years, while others do not get it at all. The change in the angle of the jaw occurs after middle life, and, as such, is not of much use to us in early life, when the question of age is important.

Now we come to the best test for age, viz., ossification of centres in bones. This is said to be observable in the living with the Röntgen rays, and to assist one in determining age. How far this is possible I cannot say. But people

who use the X-ray apparatus very largely may tell us how far this can help us in arriving at the exact age of a living person. Even granting that it is possible to find out the ossification of the different centres in the different bones, it is nowhere stated that the ossification of the different centres occurs only at such fixed ages as to make it possible to fix the exact age with the aid of this ossification.

So far, I have tried to show that we have not got any scientific data by which the exact age of a living person can be accurately ascertained.

Let us now turn to the various tests given by the defence medical witnesses in the case of alleged kidnapping quoted above. They talked of the greater development of the bones and sexual organs, of greater development and expansion of the chest, of greater thickness of the contour of the head, and greater tone of the muscles in a girl of eighteen years than in a girl of fifteen years. Can any member present here say what the standard of development of a bone, muscle, sexual organ, or chest is for a particular age, and by how much it should increase for every additional year of age? Can anybody say what the tone of a muscle should be for a particular age, and by how much it should increase with increasing age? It is true that the development of the muscles, bones and sexual organs may help you to guess the age, but they cannot be taken as exact data by which the exact age can be accurately determined. As I have already stated, various circumstances, such as previous health, family peculiarities and mode of life of the individual, have a great deal to do with the development and size of the various parts of the body of the individual. I have not had the good fortune to examine many cases for age, as many of you have had, and am therefore in a worse position than many of you here, who, by virtue of your position, have to examine thousands for determination of age. I shall be much obliged to such gentlemen if they would give us the benefit of their experience, and tell us whether really it has been possible for them to find out any data by which the exact age of a living person can be accurately determined.

I shall, before closing, quote the opinions of two medical jurists on the subject. Dr. F. J. Smith, in his book, *Lectures on Medical Jurisprudence, delivered at the London Hospital*, writes thus in one place: "Except for the teeth, the determination of age in a living subject is largely a matter for speculation or guess-work, guided more or less by judgment." In another place he writes: "We have little or no pretence to be exact, though we may make a guess at the decennium in which a given individual is, it is, in the living, a matter of impossibility to swear nearer to the exact age, in the absence of documentary proof, or of some very exceptional circumstance." In connection with this question of the medico-legal aspect of age, the *British Medical Journal*, of 21st September, 1907,

quotes a passage from Professor Dixon Mann's *Forensic Medicine and Toxicology*, as the opinion of an accomplished jurist on the subject. The quotation runs thus: "In determining the age in the living, no reliable criteria are available after adult life is reached, in the young, the teeth yield evidence up to the thirteenth or fourteenth year. General indications, of course, exist, but their variability, from idiosyncrasy, mode of life, personal attention, etc., is so great that to estimate the age of a living person between the two extremes of life is little more than guess-work."

I have now established that there are no scientific data by which the exact age of a living person can be accurately determined, and that any attempt at fixing the age must be only a guess.

Reviews

Physiological Principles in Treatment —

By W. LANGDON BROWN, M.D., F.R.C.P., Physician to the Metropolitan Hospital, Registrar and Demonstrator of Physiology, St. Bartholomew's Hospital. Pages 344. Publishers, Messrs. Baillière, Tindall & Cox, 8, Henrietta Street, Covent Garden, 1908.

It is a long time since we have come across a more interesting and illuminating little book than Dr. Langdon Brown's *Physiological Principles in Treatment*. It fills a most decided want in the library of the busy practitioner who has no time to keep up with the ever-increasing discoveries of physiological science nor to deduce therefrom the points on which his clinical conceptions should be modified. This book goes a long way to place even the busiest man in a position to take advantage of all the main points of cardinal importance in the recent advances of physiology. It is a handy size, easily carried about, can be taken up during spare intervals of time, is well-printed and most readable. The chapters are concise and contain the essence of what is known regarding the investigations forming the subject matter and the practical application of those researches on the treatment of disease. It has only been in comparatively recent years that a closer harmony has sprung up between physiology and practical medicine. Many of us remember the time when students entering the wards received the advice from their clinical teachers to forget their physiology. Those days are happily over, for while the physiologist was not entirely free from blame—seeing that laboratory methods are not infallible and are not necessarily more correct than clinical evidence, still the years that have just gone by have witnessed a much wider use of exact scientific methods in clinical work and has brought it more in touch with the methods of physiology. At the same time the striking discoveries of Pawlow, Edkins, Weinland, Bayliss and Stirling, which has led to the

re-writing of the physiology of digestion, the practical applications of Gaskell's work on the heart by Mackenzie and others, the increased knowledge of the chemistry of uric acid and purin bodies of nitrogenous metabolism and internal secretion, and particularly the introduction of convenient methods of registering the blood pressure in man all have combined to assist the physician in his work and to knit together the knowledge acquired in the laboratory and its practical application at the bedside.

There are twelve chapters every one of which brings forward much food for thought. The ideas are presented in a most commendable manner and the text is not burdened with any mass of detail—the clear issues stated distinctly and in a manner that carries conviction. Altogether we consider this production reaches a very high level of usefulness to the practitioner and student and we have no hesitation in recommending it to the profession at large.

Further Studies upon Anaphylaxis — By

M. J. ROSENAN and JOHN F. ANDERSON. *Bull. No. 45 Hyg. Lab. U.S. Pub. Health and Mar. Hosp. Serv., Washington.*

In these studies Rosenau details a series of laborious experiments, which he and his colleague undertook with a view to determine the following points: A—The incubation period of anaphylaxis, and its variations according as the injections of serum are made into the brain or otherwise, and according to the quantity of serum injected. B—The results of treatment thermal and other of the injected serum, upon the production of supersensitiveness, and upon the toxicity of the serum. C—The specificity of the anaphylactins. D—The specific lesions caused by their presence. They found that the period of incubation is constant, being shorter by two days when injections are made into the brain, thus confirming the work of Lewis and others—while they found that Besredka and Steinhardt's statement that minute quantities do not supersensitize when introduced into the brain is true of 0.00001 cc but not of 0.0001 cc of serum. Also they found that by instilling one drop of serum into the conjunctival sac of a guinea-pig it becomes sensitized to an injection of serum made 17 days afterwards. Pure proteins such as edestin and excelsin have no supersensitizing effect, "probably owing to the difficulty of obtaining a satisfactory solution of them," while the admixture of the blood or brain substance of a sensitized guinea-pig with normal horse serum did not affect the sensitizing of the animal treated with this mixture. Heat up to 90°C for an hour had no effect on the normal serum, but when it was treated to 100°C for an hour it lost the power of causing supersensitiveness. Keeping does not affect the serum they found, thus traversing Besredka's opinion as to the lessened toxicity of old serum. The

serum was treated with pancreatin, potassium oxalate, pepsin, sodium sulphate, magnesium sulphate, peptone, calcium chloride, calcium acetate, iodine, without its toxic properties being modified, while preliminary treatment of the animal with iodine, nitrites, and ether had also no effect. They thus upset Besredka's conclusions as to the certain prophylaxis afforded by etherizing the animal just before giving it the second injection of serum. The anaphylactins are, they found, specific, for animals sensitized with human milk did not react to an injection of cow's milk but markedly to one of human milk, and the same specific reaction was noted in the case of animals sensitized with dog's milk, which failed to react to cow's milk. But egg-albumin of various birds caused reaction to egg-albumin of other birds.

By means of laborious experiments they were able to fix the fact that anaphylactin does not exist in the serum of an animal until the tenth day after the first injection, and that the serum of animals bled on and after the tenth day contains it constantly, and is always able to cause supersensitiveness in other animals, of very varying species. They do not agree with Besredka in the opinion that all sera which when injected into guinea-pigs in doses of $\frac{1}{10}$ to $\frac{1}{20}$ of a cc should be considered to be dangerous—as they hold that the unfortunate accidents which every now and then occur when sero-therapy is carried out in the human subject depend more on the sensitiveness of the individual than on the toxicity of the serum used, and they believe that this sensitiveness is greatest in asthmatics. Sera which have no evil effect on man are found to be quite as toxic to guinea-pigs as those which have led to untoward results.

Immunity to anaphylactin may, they found, be relative but is never positive even when repeated injections of boiled serum are employed, if the animal has previously received a toxin-antitoxin injection.

From the fact that injection of foetal blood into the mother does not supersensitize the animal they conclude that the toxæmias of pregnancy can in no way come from the foetus. On the other hand they found that "the mother guinea-pig may be sensitized with the autolytic products of her own placenta." Our congratulations are due to Rosenau and Anderson on the brilliant results obtained by them.

W D S

The Practice of Medicine—By the late M CHARTERIS, M D. Edited by F J CHARTERIS, M D, Physician to the Outdoor Department, Western Infirmary, Glasgow, Senior Assistant to the Professor of Materia Medica and Therapeutics, Glasgow University. Ninth Edition, pp 689. Publishers Messrs J & A Churchill, Great Marlborough Street, 1909. Price 9 6 net.

It seems a comparatively short time since we had the pleasure of reviewing the previous edi-

tion of this well-known book on the practice of medicine. It is one for which very many men now carrying out the practice of the principles it teaches have a very warm regard, as in many instances it formed the stepping-stone from the study, of anatomy and physiology to what may be called medicine proper. The present edition has been brought thoroughly up to date by the editor Dr F J Charteris, the whole text being extensively revised and in many instances rewritten. Some parts are entirely new, many morbid conditions being included for the first time, among the more important being Mucus Colitis, Duodenal Ulcer, Heart-block and Fibrositis.

The articles dealing with many of the lesions of the nervous system have been greatly altered, and a short introductory account of the anatomy and physiology of the central nervous system has been included. Yet, despite these large additions, which have very considerably increased the scope of the book, it has not been found necessary to add more than some thirty or forty pages to the number of the former edition.

The effect of these changes is to place on the market a thoroughly reliable guide to the student endeavouring to obtain a grasp of the principles and practice of medicine. A strong point made by the editor is the special attention given to the therapeutic sections—the lines of treatment advocated being mainly those which have stood the test of practical application and have been found most successful. The publishers are to be congratulated on the very handsome get-up of the volume, the excellent paper and clear well defined type of the printing. We have great pleasure in recommending this volume to students, it is just what is wanted by those who are attending the hospital wards to read over in connection with the different types of disease they meet with from day to day.

There is a most useful index and a carefully compiled glossary—a most necessary adjunct for the proper understanding of the every-day language of medical science. We offer our congratulations to Dr Charteris on the volume and on the careful work he has put into every page.

Fourth Annual Report of the Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. An account of the general and special clinical and pathological work done by members of the staff of the Institute during the year—Edited by JOSEPH WALSH, A M, M D.

ONE of the functions of the Phipps Institute is to gather clinical and sociological data for scientific deductions. With this end in view every patient is subjected to searching enquiry into his personal and ancestral history and is given a careful physical examination when he comes under treatment. Every possible method of examination is carried out, and every possible

source of information tapped in order that nothing may be overlooked. The annual report of the Institute is made from these records and the scientific problems which are worked out by the members of the staff are, as a rule, based on the data furnished by them. The institute has now records,—thus most laboriously and painstakingly compiled—of nearly five thousand cases.

This fourth report affords much valuable information to those interested in the problems of tuberculosis and throws light on many side-issues which have never been touched by previous observers. One of the strangest of these comes out in the comparison of the prevalence and mortality of tuberculosis in the male and female.

The male is to a much greater extent—probably two-fold—an out-door creature than the female yet the relative mortality is 211 per hundred thousand in males and 164 per hundred thousand females. The deduction from these figures appears to be that physical hardship is perhaps a more potent factor in the development of tuberculosis than is the want of out-door life. Another curious result recorded is the exceeding high mortality rate of patients whose mother was of Irish descent, while the native of native parentage of the United States appears to be less susceptible to tuberculosis than is the native of foreign parentage or the foreigner of foreign parentage. Much interesting work has been done on the age incidence of tuberculosis, the prevalence of the disease in the married and single, the question of the general build of the body, the physiognomy, appearance, complexion, etc., on the susceptibility to tuberculosis. None of these factors seem to be of much importance, the mortality was greater in patients of light complexion with light eyes than in those with dark complexion and dark eyes.

The analyses of the figures showing the result of occupation on the incidence of tuberculosis are of special interest and tend to confirm the view that hardship and deprivation are two important factors while out-door and in-door life seem to play a secondary part to these. The relative position of the occupation is undoubtedly influenced also by such factors as dust, dissipation, and low wages. The clerk and book-keeper, who are usually looked upon as the legitimate prey of consumption, stand quite low on the table of incidence, and the business man who leads an in-door life stands next to the policeman who is lowest of all on the list.

In fact all occupations which give a fair compensation and are not accompanied by severe physical labour have a relatively low incidence of tuberculosis.

The effects of alcohol and tobacco on the incidence of tuberculosis formed another subject of enquiry. The alcoholic with tubercle on coming under treatment either does very badly

or does remarkably well. He is very prone to pneumonia and nephritis, but if he escapes these, his improvement is rapid and often phenomenal. Regarding tobacco the preposterous claims that have been made regarding its preventative action cannot be maintained, quite the contrary would seem to be the true state of the case, it would appear to have a predisposing influence from the statistics brought forward.

The report is full of the most interesting items of information concerning the most common and deadly of all diseases, we have only had space to touch on the clinical and sociological part of the report, but we can thoroughly recommend its perusal to all—even those outside the ranks of the profession.

Other subjects made a study of are—the condition of the blood, albuminuria, the pleura, tuberculosis of the bones and joints, pathological and bacteriological report of the year, relationship of the pneumococcus to hæmorrhage in tuberculosis, etc.

The staff of the institute are to be greatly commended for the splendid work they are doing and to be congratulated for this latest addition to our knowledge of a disease that touches practically every family in the universe and is, therefore, of universal interest.

The Propaganda for Reform in Proprietary Medicines—Fifth edition, revised to September 12th, 1908

THIS little work contains the cream of the reports which during the last four years have been made in the journal of the American Medical Association by the Council on Pharmacy and Chemistry of the Association. It should be in the hands of every one of our readers, for not only does it afford valuable information regarding the composition of many much vaunted proprietary medicines, thus supplementing the analyses made by Zernik and the British Medical Association's Chemist, but also gives amusing instances of the disingenuous ways of the pusher of nostrums.

We may briefly give the following formulæ, which show that it is only the cheapest materials which are used in the manufacture of nostrums, though these are sold at the highest price that the "inventors" think can possibly be screwed out of the public.

Antikamnia—used to contain in America and still contains in countries outside the purview of the American Food and Drugs Act Acetanilid 60, Caffeine 5, Ac Citric 5, Sodii Bicarb 20. Now in America it contains—Phenacetine (acetphenitidin) 72, Caffeine 141, Ac citric & Sodii Bicarb, 14—approximately.

Phenalgin—Acetanilid 57, Sodii bicarb, 29, Ammon carb, 10, but this last ingredient is not always present.

Cactin—is in itself inert, and the fact that scopalamine and morphine are present in the H M C (hyoscyne, morphine, cactin) pellets

advertised by the Abbott Alkaloidal Company, accounts for much of the action of these pellets

Eno's Fruit Salt—contains Sodium bicarb, 50, Sodium bitart, 15, Ac tartaric, 35. It is thus very like ordinary seditz powder, but of course is more expensive

Purgen—is simply another name for phenolphthalein. As *Purgen* this costs about eight times what it costs under its chemical name. Another instance of the value of a name to its inventor is *Urotropin*, as many of our readers may remember

Now as instances of the disregard for truth which characterizes patent medicine-vendors above all men we may take the following—

Lactopeptine which is vaunted to contain "the five active agents of digestion—pepsin, diastase (veg ptyatin) pancreatin, lactic acid and hydrochloric acid—combined in the proper proportion to insure the best result." More than 90 per cent of this nostrum is milk sugar! The amount of pepsin is very small, and there is no appreciable amount of hydrochloric acid present, while careful examination failed to reveal the presence of either pancreatin or diastase. Had these ferments been present, how they could act in the presence of the stomach acid is a mystery

Our readers will note that *Lactopeptine* was exposed thirty years ago, but thanks to the commercial (and unethical) spirit shown by many medical journals in their advertisement columns, it is still "going strong." *Vulgus vult decipere*

Ingluvin is stated to owe its special power of remedying dyspepsia to the fact that it contains "free glycocholic acid." The presence of this substance, however, cannot be established, nor do the anatomical relations of the fowl admit of its being present!

Atoxyl is advertised as a preparation by whose use one may administer 40 times as much arsenic as by the use of Fowler's solution. The facts are that the recommended dose of *atoxyl* contains but $1\frac{1}{2}$ times the amount of arsenic in the advised dose of Fowler's solution

Vin Mariani used to be advertised as "not a cocaine preparation", but—since the American Food and Drugs Act was passed, it is stated that each ounce "represents $\frac{1}{10}$ th of a grain of cocaine"

The Etiology and Nature of Cancerous and other Growths—By W T GIBSON, A R C S, London, John Bale, Sons and Danielsson Ltd, 1909

CANCER is due to irritation. Irritation is due to sunlight, X-rays, cold, fat products especially aniline and decomposition products in the intestine especially at the flexures. Also to "neurotic" conditions—oh blessed word neurotic. Cancer is curable by causing acidosis—by starvation, or by the use of non-nitrogenous aromatic acids, e.g., cinnamic acid, or the

less innocuous benzoic acid—also perhaps sulphur compounds are of use, e.g., hyposulphite of sodium

Can anything be more simple—or silly?

Correspondence

PROSTATECTOMY

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Regarding the "Geographical distribution of the Prostatectomy operation" as mentioned in the reports of the eight cases of Prostatectomy by Capt E Owen Thurston, F R C S, Civil Surgeon, Gaya in your issue for February 1909, I beg to inform you that, during my one year's service at the Dhubri Hospital (Assam) under Capt H Gidney, F R C S E, I M S I had the good fortune to come across three well marked cases of enlarged Prostate. Capt Gidney has, I believe, performed seven Prostatectomies in East Bengal and Assam. The Civil Surgeon gave me orders to examine very carefully the Prostate in each and every case with a present or past history of retention of urine and it was mainly due to this that these cases were detected. I think the disease is not uncommon in Assam though this opinion of mine is based on the detection of only three cases in a year in a Sadr Hospital

BILASHIPARA
MISFASARI,
17th February, 1909

Yours faithfully,
UPENDRA MOHAN LAHIRI,
Civil Hospital Assistant

QUININE IN PREGNANCY

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In continuation of the correspondence that has been going on in your paper on the above subject, I venture to add the following, with a few details of the cases treated

The fact that quinine is used to overcome uterine inertia in weak women, and as an echolic is always prescribed during labour, if there is no obstruction, is mainly responsible for the general impression that its use should be avoided during pregnancy as far as possible. Clinical experience however warrants no such fear about the administration of quinine during pregnancy. Hare in his *Practical Therapeutics* says that quinine "will not of itself cause abortion, but in nervous, hysterical women who have a tendency to abort, and whom it is necessary to give full doses of quinine during pregnancy, it may be well to combine some sedative, as one of the bromides or opium with the antiperiodic." Ghosh boldly affirms that "the notion that the administration of quinine in pregnancy is highly dangerous is a mistake. Very large doses are frequently taken without causing any ill effects. Indeed one often sees abortion result from an unchecked fever, which might have been avoided by the timely administration of quinine" (*Maternal Medicine and Therapeutics*, 3rd Edition, page 344)

During the last epidemic of malaria in Bombay, a large number of inhabitants of this place suffering from malaria, came up here for a change. Most of these people stay in Bombay on the Frere Road and the North Fort side, the herd quarters so to say of the epidemic. Among these arrivals, were a number of pregnant women, all more or less infected, who applied for treatment at the dispensary and had to be given quinine in varying doses. Not wishing to expose any of these patients to a chance of miscarriage, I first tried arsenic in the form of Fowler's solution in full doses, but this I found in no way prevented the next pyrexia, in some it only checked the height of fever during the next attack. Quinine was, therefore, used in all the cases, eleven in number, with a distinct curative effect in most of the cases, the pregnancy continuing uninterrupted in all but one. This patient No 8 who miscarried after taking only two doses of quinine sulphas of 3 grains each, had a history of four months' fever, was extremely anæmic, with a puffy face and œdema of the feet and was having feeble uterine pains for two days previous to the administration of quinine. It is very doubtful, therefore, if quinine was the sole cause of miscarriage, it may be that it intensified the feeble uterine contractions that were previously present and thus brought on miscarriage

The following are the details of each case—

(1) M G aged 22, 1st para Pregnant 37 weeks Took 8 grains of Quinine Sulphas in one dose for seven days continuously. Pregnancy uninterrupted

(2) M V, aged 21 Pregnant six months Took 16 grains per diem divided into three doses and combined with Tn Camphor Co in X per dose, for five days continuously For the next week she took 10 grains for the first three days, and 6 grains for the other four days Pregnancy uninterrupted

(3) M J, aged 18 Pregnant seven months 1st para Took quinine grs 5 for two days, successively No effect on the Uterus

(4) N D, aged 22 Pregnant eight months, 2nd para Took quinine 15 grains for two days and 20 grains for three days, all in succession The quinine was here given with Tn Camphor Co Pregnancy uninterrupted

(5) M K, aged 19, Pregnant six weeks, 1st para Took quinine grs XV per diem, for three days successively, divided in three doses Tinct. Opium V was added to each dose Pregnancy uninterrupted till this day, i.e., two months after the treatment was left off

(6) S K, aged 23 Pregnant five months Took quinine grs V morning and evening for four days from 22nd to 25th December 1908 Five minims of In Opu was added to each dose of quinine Pregnancy continues uninterrupted

(7) F M, aged 24 Pregnant five months, 2nd para Took two quinine pills, grs V each, for three days Pregnancy uninterrupted

(8) N V, aged 20 Pregnant eight months Took two doses of quinine, 3 grains per dose The patient miscarried as stated above after the second dose was taken Unfortunately, in this case no sedative was added to the quinine mixture

(9) N R, aged 23, 3rd para Pregnant five months Took one dose of 8 grains of quinine sulphas on the 14th and 15th of November 1908 For the next two days the patient took 15 grains in three doses combined with In Camphor Co mm XX per dose Pregnancy continues uninterrupted

(10) S A, aged 22 Pregnant five months This was an indigenous case, she took quinine 15 grains in three doses for two days successively Pregnancy uninterrupted

(11) G V, aged 19 Pregnant seven months, 2nd para This was the most severely infected case of the whole series the patient's condition at times being very serious, and pretty large doses of quinine had to be given for several days in succession In fact, during the six weeks, the patient was under treatment before she was delivered, she was administered a total of 249 grains Not less than 5 grains per dose was ever given and this had to be increased to 10 grains the same quantity being often repeated in the evening, combined with 3 to 10 minims of Tinct opii The patient gave birth to a living male child, when she was advanced 34 weeks But for quinine, it is very doubtful if pregnancy could have gone on to this term Quinine in this case not only prolonged the term of pregnancy, but it also saved the patient's life as well as that of child

DISPENSARY VANICK,
MANGROL,
DIST KATHIAWAR,
20th January, 1909

Yours, &c.,
K V THAKKAR, I M & S

"QUININE IN PREGNANCY"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The question of administration of quinine in pregnancy is really a burning question of the day Diversity of opinion leads to no definite conclusion

I, for one, may be permitted to take advantage of your valuable journal and give the following observation for the careful consideration of your esteemed readers

It is a plain truth that not a village or town can be found in Bengal free from malaria, and no woman can, in my humble opinion, be met with, who has never had a single attack of malarial fever during the whole course of her pregnancy throughout the entire length of the child bearing period of her life, and it is not possible that all of them have totally abstained from taking quinine

I have had an ample opportunity of making systematic use of quinine in different stages of pregnancy in different forms and doses varying from grains three to the maximum limit of grains ten at a time, 3 or 4 times daily, but, fortunately, not a single case developed any untoward phenomena of "died" I have a strong belief in "idiosyncrasy" and individual susceptibility of a particular organ or tissue Very few, of course, take so much trouble as to ascertain the fact if the abortion is really induced by use of quinine alone, or if the condition of the uterus was sufficiently favourable to end in abortion on account of some other causes present long before the use of quinine There is no evidence to show that unless the quinine was administered, there was no sure chance of abortion It may be true that quinine acts upon the gravid uterus, but it is doubtful if the alleged tonic effect is solely responsible for all the unhappy incidents,

When opinion differs and the importance of the subject cannot be disputed it is desirable that the experience of the great men will be brought to light for the interest of the profession and the public

I remain,

Sir

Your most obedient servant,
SATKARI GANGOPADHYA,
Civil Hospital Assistant

TRINITY CHARITABLE DISPENSARY,
SARUPNACOR P O,
24 PARGANAS

The 22nd January, 1909

"QUACKERY IN INDIA"

To the Editor of THE "INDIAN MEDICAL GAZETTE"

DEAR SIR,—In every small town of India a number of men are found, who style themselves "Medical Practitioners" Under this word lies concealed the fact that the men in question have got no degrees in medicine from recognised institutions They carry on the profession without having gone through any professional training either at a Medical College or School in India They are nothing short of quacks, and it is a pity that the Government do not see their way to put a stop to such quack practice Pleaders are not allowed to practise without a SANAD Why should not the same measure be adopted in case of Doctors? Life is certainly a very valuable thing, but the poor and ignorant man in the street in the mofussil has to entrust his life to the cure of these unqualified men No wonder if he is deprived both of his money and health The question of quack practice calls for prompt measure and Government cannot take the matter too early in hand

I beg to remain

Yours truly,
RAGHUNATH RAMAN BAPAT,
Hospital Assistant

Service Notes

MARRIAGE

SCHROTTIE URE—On the 17th instant, at St Andrews (the Kirk), Madras, by the Rev R Horne Stevenson, M A, Senior Presidency Chaplain, Captain William Reith John Schrottie, Indian Medical Service, to Florence Marjorie, only daughter of Mr and Mrs William Ure of Madras

OBITUARY

BRIGADE SURGEON LIEUTENANT COLONEL SIR GEORGE KING, K C I F, Bengal Medical Service, retired, died at San Remo on 15th February 1909 Sir George was born on 12th April 1840, educated at Aberdeen where he took the degrees of M B, C M, with Honours in 1865 and entered the I M S as Assistant Surgeon on 1st October 1865 becoming Surgeon on 1st July 1873, Surgeon Major on 1st October 1877 and Brigade Surgeon on 2nd April 1889 and retiring with an extra compensation pension, on 28th February 1893 The greater part of his service was spent in the appointment of Superintendent of the Royal Botanical Gardens Sibpur Calcutta, in which he succeeded Dr Thomas Anderson in 1870 It was chiefly through Sir George King's work that the cultivation of cinchona in Bengal was established at Darjeeling In 1884 he received the degree of LL D from Aberdeen University, in 1887 he became a Fellow of the Royal Society, he was made a C I E on 1st January 1890, and K C I E on 1st January 1893 and in 1901 received the Linnæan Society's Gold Medal in Botany He was the author of several botanical works "A Manual of Cinchona Cultivation in India," 1876, "A Monograph of species of Ferns of India and China," "Materials for a Flora of the Malay Peninsula," "Guide to the Royal Botanic Gardens, Calcutta," 1895, "Annals of the Royal Botanic Garden, Calcutta," 1889 and many subsequent years (these "Annals" contain sketches of the lives of some of his predecessors in the office of Superintendent), and of several articles in the earlier volumes of Scientific Memoirs He had no war service

SURGEON MAJOR WILLIAM NIVEN, Bombay Medical Service retired, died at Oia Sussex, on 7th February 1909 Dr Niven was born in 1827, took the diploma of L R C S Ed in 1851, and that of L S A in 1852, and the degree of M D, St Andrews, in 1854, and entered the I M S as Assistant Surgeon on 24th January 1855, becoming Surgeon

on 24th January 1867 and Surgeon Major on 1st July 1873, and retiring on 14th April 1881. He served in the Persian War of 1856-57, was present at the bombardment and capture of Mohammara, and received the medal with clasp.

CAPTAIN J J URWIN, I M S, on return from leave, is appointed to do general duty at the Medical College Hospital Calcutta with effect from the forenoon of the 10th instant and until further orders.

MAJOR G Y C HUNTER, I M S, is appointed to act as Superintendent of the Presidency Central Jail, Calcutta, during the absence, on deputation of Major J Mulvaney, I M S, or until further orders with effect from the date on which he joins the appointment.

The King has approved of the retirement of the following Officers of the Indian Army Indian Medical Service
Colonel Harry Beecham Briggs Dated 1st January 1909
Lieutenant Colonel Charles Monk Dated 23th November 1908

LIEUTENANT COLONEL C C MANIFOLD, I M S, Civil Surgeon of Delhi Dun, privilege leave, combined with furlough for a total period of twenty months, with effect from the 26th March 1909.

CIVIL ASSISTANT SURGEON SHANBHU NATH MISRA, attached to Sadra Dispensary, Ftwah, to hold Civil Medical charge of the District in addition to his own duties, as a temporary measure.

IN supersession of Notification No 251-II S dated the 25th January 1909, Captain W E McKechnie, I M S, whose services have been placed at the disposal of this Government by the Government of India, to officiate as Civil Surgeon of Etawah.

LIEUTENANT COLONEL W VOST, I M S, Civil Surgeon from Muttra to Saharanpur.

LIEUTENANT COLONEL L G FISCHER, I M S, Civil Surgeon, from Saharanpur to Delhi Dun.

THE services of Major C H Bensley, I M S, Superintendent, Multan Central Jail, are placed at the disposal of the Hon'ble the Chief Commissioner, Central Provinces, with effect from the date on which he may relinquish charge of his duties.

LIEUTENANT COLONEL J W RODGERS, I M S, assumed charge of the Civil Medical duties of Chikdria on the afternoon of the 18th February 1909, relieving Lieutenant H Hay Thorburn.

CAPTAIN R H LEE, I M S, is appointed to officiate as Civil Surgeon of the Naga Hills district.

CAPTAIN H INNES, I M S, Civil Surgeon, is allowed furlough for one day, under Article 308 (b) of the Civil Service Regulations, in continuation of the twenty one months' combined leave granted him by Government Notification No 591 G, dated the 18th February 1907.

THE services of Lieutenant Colonel C J. Bamber, I M S, are replaced at the disposal of the Government of the Punjab.

THE following officers of the Indian Medical Service having satisfactorily completed their courses at the Royal Army Medical College and at Aldershot, have been finally admitted to the service. Their commissions will bear date the 1st August 1908—

Reginald Broughton Lloyd
Archibald Cimpbell Munro
Ram Nath Chopra
Alfred Geddes Fiesdider
Gordon Gray Jolly
Hugh Stott
Alister Aigyll Campbell McNeill
Robert Long Gamlen
Abdus Sattar Khan
George Frederick Graham
Maneck Dhunjshaw Wadri
Taylor David Munson
Sohrab Shapoory Vazifdar
John Joseph Harper Nelson
Edward Solby Phipson
Fleet Floyd Strother Smith
Sureswar Sarkar
Arthur Jessop Symes
Gerald Lewis Colhoun Little
Thomas Crawford Boyd.

CAPTAIN J H HORTON, D S O, I M S, assumed charge of the Civil Medical duties of the Bannu District on the afternoon of the 10th of February 1909, relieving Captain H Boulton, I M S.

CAPTAIN H DOULTON, I M S, made over charge of the duties of Superintendent of the Bannu Jail to Captain J H Horton, D S O, I M S, on the afternoon of the 10th February 1909.

HIS Excellency the Governor in Council is pleased to appoint Captain B B Paymaster, I M S, to act as Civil Surgeon, Kairwar, vice Assistant Surgeon W E Kirkpatrick, retiring.

IN modification of so much of Government Notification No 741, dated the 10th February 1909, as relates to the appointment of Captain C C Munson, I M S, to the Civil Surgeoncy at Karachi, HIS Excellency the Governor in Council is pleased to appoint Captain R M Barion, I M S, to act as Civil Surgeon, Karachi, in relief of Major A A Gibbs, I M S, and pending the return to duty of Major B B Gray, I M S, or further orders.

HIS Excellency the Governor in Council is pleased to make the following appointments—

Major J B Jameson, V B, I M S, to be Civil Surgeon Ahmednagar, continuing to do duty as Superintendent of Mahabaleshwar.

Major H Bennett, V B, C M, B S C, F P C S, I M S, to be Civil Surgeon, Surat.

Captain G McPherson, M A, V B, C M, I M S, to be Civil Surgeon, Sholapur, continuing to do duty as Superintendent of Matheran.

Major W S P Ricketts, M B, I M S, to be Civil Surgeon, Salata, continuing to act as Port Surgeon, Aden.

Captain C C Munson, L R C S & P, I M S, to be Civil Surgeon, Sukkar, continuing to act as Civil Surgeon, Hyderabad.

Major S Evans, M B, M Ch, I M S, to be Civil Surgeon, Nasik.

Captain W M Houston, V B, I M S, to be Assistant Surgeon to the David Sassoon Hospital and Assistant to the Civil Surgeon, Poona, continuing to act as Personal Assistant to the Surgeon General with the Government of Bombay.

CAPTAIN H J R TWIGG, V B, I M S, Acting Superintendent, Yeravda Central Prison, is granted from the 27th March 1909, or the subsequent date on which he may avail himself of it, such privilege leave as may be due to him on that date in combination with study leave for six months and furlough for eleven months and fifteen days.

CAPTAIN G MCPHERSON, M B, I M S, Superintendent of Matheran in the district of Kolaba, is appointed, under section 12 of the Code of Criminal Procedure, 1898, to be a Magistrate of the first class in that district.

UNDER the provisions of Articles 260 and 233 of the Civil Service Regulations, and paragraph 358, Army Regulations, India, Volume I (Provisional Issue), privilege leave to the amount due and leave out of India in continuation thereof for a total combined period of eight months is granted to Captain W S I Shaw, V B, I M S, Superintendent, Lunatic Asylum, Rangoon, with effect from the 25th February 1909, or the subsequent date on which he may avail himself of the privilege leave.

CAPTAIN W H COX, I M S, whose services have been placed at the disposal of the Government of Burma, is appointed to be Superintendent of the Lunatic Asylum, Rangoon, in place of Captain W S J Shaw, M B, I M S, proceeding on leave.

UNDER the provisions of Articles 232 and 308 (b) of the Civil Service Regulations, furlough in India for nine days is granted to Lieutenant Colonel Kant Prasad, I M S, in extension of the leave granted in this Department Notification No 220, dated the 3rd July 1907, as extended by fourteen days' furlough by His Majesty's Secretary of State for India.

THE services of Captain W E McKechnie, M B, I M S, are placed temporarily at the disposal of the Government of the United Provinces.

THE services of Captain H A Dongan, I M S, are placed temporarily at the disposal of the Government of Madras.

THE Home Department Notification No 99, dated the 27th January 1909, placing the services of Captain G J G Young I M S, temporarily at the disposal of the Government of Madras, is hereby cancelled

LIEUTENANT COLONEL W R CLARK, I M S, made over charge of the duties of Superintendent of the Rawal Pindi District Jail to Mr G Worsley, Assistant Commissioner, on the forenoon of the 18th January 1909

MR G WORSLEY, Assistant Commissioner made over charge of the duties of Superintendent of the Rawal Pindi District Jail to Lieutenant Colonel W R Clark, I M S, on the forenoon of the 1st February 1909

PRIVILEGE leave for nineteen days under Article 260 of the Civil Service Regulations is granted to Lieutenant Colonel A Buchanan, I M S, Civil Surgeon Amraoti, with effect from the 17th July to the 4th August 1903, both dates inclusive

MAJOR A G HENDLEY, I M S, Civil Surgeon, has been granted, by His Majesty's Secretary of State for India, leave on medical certificate for six months, in extension of the combined leave granted him by Orders No 412, dated the 19th February 1907, No 133, dated the 22nd January 1908, and No 1572, dated the 30th July 1918

CAPTAIN E F G TUCKER, M R C P, L R C P, I M S, to be Civil Surgeon Dhulia, continuing to act as Presidency Surgeon, Second District, and Marine Surgeon and Superintendent, Lunatic Asylum, Colaba

CAPTAIN A G SARCENT, M R C S, L R C P, I M S, to be Civil Surgeon, Panch Mahals, continuing to act as Civil Surgeon, Ratnagiri

COLONEL R W S LYONS, I M S, to be Principal Medical Officer, Abbottabad and Sialkote Brigades, vice Colonel J McCloghry, I M S, retired

COLONEL S C B ROBINSON British Service, to be Principal Medical Officer, Jubbulpore and Jhansi Brigades, vice Colonel D O'Sullivan, British Service, transferred

MAJOR J M CRAWFORD, I M S, Civil Surgeon, from Gorakhpur to Benares

MAJOR C MILNE, I M S, Civil Surgeon, from Gonda to Gorakhpur

MAJOR R G TURNER, I M S, Civil Surgeon, from Jhansi to Gonda

CAPTAIN C A SPRAWSON, I M S, Officiating Deputy Sanitary Commissioner, 2nd Circle, to officiate as Civil Surgeon of Jhansi

CAPTAIN A W OVERBECK WRIGHT, I M S, on plague duty at Azamgarh and Ballia, to officiate as Superintendent of the Lunatic Asylum at Agia, vice Major A W R Cochrane, I M S, granted leave

THE services of the undermentioned officers are placed permanently at the disposal of the Government of the United Provinces —

Captain W M Pearson, M B, I M S
Captain C Dykes, M B, I M S

THE services of Major S A HARRISS, M B, I M S, are placed permanently at the disposal of the Government of the United Provinces for employment in the Sanitary Department

THE services of Captain F W SUMNER, M B, F R C S F, I M S, are placed temporarily at the disposal of the Government of the United Provinces

MAJOR S P JAMES, M D, I M S is confirmed in the appointment of Statistical Officer to the Government of India in the Sanitary and Medical Departments, with effect from the 9th September 1904

IN modification of the Home Department Notification No 140, dated the 14th February 1906 the Governor General in Council is pleased to declare that the confirmation of Major A E Roberts, M B, I M S (since retired) in the appointment of Secretary to the Director General, Indian Medical Service, shall take effect from the 9th September 1904, the date on which he assumed charge of that office,

CAPTAIN E A C MATTHEWS, M B I M S, is appointed to officiate as Superintendent of the X-ray Institute, Dehra Dun, during the absence of Captain A F Walter, I M S who has proceeded on leave in anticipation of formal sanction or until further orders

LIEUTENANT H HAY THORBURN, I M S, assumed charge of the Civil Medical duties of Malakand and Dirai on the forenoon of the 18th of February 1909, relieving Lieutenant Colonel J W Rodgers, I M S

MAJOR C H BOWLE EVANS, I M S, Bengal an Agency Surgeon of the 2nd class, is granted privilege leave for two months and twenty-one days combined with furlough for one year six months and nine days, and study leave for three months, with effect from the 11th January 1909, under Articles 233 and 308 (b) of the Civil Service Regulations, and the Regulations prescribed under the Notification by the Government of India in the Department of Military Supply No 16 Medical Department, dated the 15th March 1907

MAJOR V G DRAKE BROCKMAN, I M S, Bengal an Agency Surgeon of the 2nd class is posted as Civil Surgeon, Hazara, with effect from the 16th January 1909

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR, *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta

Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12 including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED —

Matland Ramsay's, Diathesis and Ocular Diseases (Baillière, Tindall & Cox)
Report of Tipps Institute
The Administration of Sir Andrew Fraser (Bengal Secretariat Press)
Physiological Principles in Treatment W Langdon Brown (Messrs Baillière, Tindall & Cox)
Rosenan & Anderson Bull, 45 Hyg Lab, U S Further Studies upon Anaphylaxis
Charteris Practice of Medicine (Messrs J & A Churchill)
Propaganda for Reform in Proprietary Medicines Fifth Edition, 1902
Green's Encyclopedia and Dictionary of Medicine and Surgery Vol V
The Rat Problem W K Boelter (Messrs John Bale, Sons & Danielson Ltd)
Soured Milk and Pure Cultures of Lactic Acid Bacilli in the Treatment of Disease Herschell Published by H J Glasher London
Lady Minto's Indian Nursing Association Report, 1908
Sleeping Sickness How to avoid Infection Royal Society Burlington House, London
The Origin and Prevalence of Typhoid Fever in the District of Columbia 1907 Hyg Lab, No 44 By Rosenan, Lumsden and Kastle, U States
The Present Pandemic of Plague By Asst Surgeon Genl I M Edgar, U State, 1902
Administration Report of the North West Frontier Province for 1907-08
The Etiology and Nature of Cancerous and other Growths By W J Gibson, A R C S, London, John Bale Sons & Danielson Ltd, 1909
The Poison of Venomous Snakes The late Sir J Fayer, Bart, Sir Laurier Brumton, Bart, and Major L Rogers, I M S (Messrs MacMillan & Co, Ltd, 1909)

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Major A C Lane Moghlay, Lt I O Gillman I S M D, Sambulpur, Hospital Asst Raghunath Nandan Bajaj, Kolapur, Asst Surgn I R Roy, Ghora Call, Asst Surgn K V Thakkar I M S, Mangrol, Capt Reil, I M S, Purnea Capt Browne, Kohat Major Smith I M S, Belgaum, Major L Rogers I M S, Calcutta Dr Percec Calcutta, Major Deane, Hazaribagh, Major Calvert, Dargajoling Major Maddox, Ranchi, Dr Pavy, London Asst Surgn C C Chatterjee M B, Rev Dr Heav, Hazaribagh Asst Surgn U M Laluri, Bilashipara, Dr D'unha Phillips, Aiknam Major Duer I M S, Maynaghat Capt Campbell Dykes, I M S, Etawah, and Capt McCarrison, I M S, Gilgit

Original Articles.

THE INOCULATION ACCIDENT IN MANILA, P I, IN 1906

BY W M HAFFKINE,

AN article by Dr Paul C Freer, Director of the Bureau of Science, Manila, P I, was published under the title "Accidental Inoculation with the Virus of Plague," in the *Journal of the American Medical Association* of 13th April 1907. The article is to the following effect —

"ACCIDENTAL INOCULATION WITH THE VIRUS OF PLAGUE"

BY PAUL C FREER, M D,

Director, Bureau of Science, Manila, P I

"LAST fall, as the unfortunate result of the accidental contamination of the cholera vaccine with a culture of plague bacilli, a number of natives were inoculated with plague and several died. The occurrence makes of interest the following account of the work with the cholera vaccine.

"For the last three years Dr Richard P Strong of this bureau has been working on a cholera vaccine which consisted of an extract of the killed, digested and filtered organisms, later modified to a mixture of such an extract with one obtained by shaking on a shaking machine the living organisms in distilled water and then filtering. Obviously this product is always carefully tested and is absolutely sterile, and the health department has used it on about seven thousand persons in the Philippines. One-half of the prisoners in the Government prison at Bilibid were vaccinated with this vaccine and one-half unvaccinated. The same was done in a number of villages in the surrounding territory. Needless to state, no bad results followed from these vaccinations. There is a moderate general reaction following the inoculation, but the local reaction is very slight. The reaction from vaccination with this cholera vaccine is not as serious as that which frequently follows the small-pox vaccination, yet a high blood immunity results.

"Subsequent experiments in the town of Angat, where one thousand and seventy-eight persons were vaccinated, showed that after vaccination there were one hundred and twenty-two cases of cholera, one hundred and twenty-one of which were among the unvaccinated and only one among the ones vaccinated. In the prison we had no further epidemic of cholera after the vaccination, but no conclusions can be drawn because the cholera was stopped by

sanitary measures. It may be stated, however, that since the vaccination we have had twenty cases of cholera, eighteen of which were among the unvaccinated and two among the ones vaccinated.

"Dr Strong continued his work on immunity against cholera by vaccination, as he was convinced that this means was one which would aid in the prevention of large epidemics in the future, since it is known that apparently healthy people frequently carried about in their intestines cholera spirilla, which are passed in the stools, and hence quarantine and sanitary measures cannot always be considered effective safeguards against a cholera epidemic. Certainly, the end sought for is a great one and the results satisfactory.

"Last year, in a Medical Congress at Berlin, the method of vaccination by means of the entire organism and not by its extracts was advocated. Haffkine has urged the use of the living organism and believes that by its use a higher immunity can be obtained. Dr Strong, of necessity to complete his argument, needed to make some vaccinations by this method, as he was convinced that it was not superior to the one generally employed by this laboratory, but, obviously, with such arguments in literature others would come forward attacking his results. In employing the living organism, it is necessary to use a 24-hour old culture owing to the fact that after this time changes take place in the culture owing to the formation of ferments, death of a large number of bacteria, etc., and, consequently, while the method allows of every test as regards the purity of the cultures up to 24 hours before their use, after this time (when many cultures are employed) no satisfactory test of its purity can be made and no test on animals can be carried on, since the cultures must be inoculated 24 hours after their preparation. Inoculations had been carried on in Bilibid several days without accident. On the day of the misfortune twenty-four men were inoculated, but this was not compulsory. The history of this vaccination is about as follows —

"The culture was carefully carried out and identified, and was known to be a pure culture of the cholera organism up to 24 hours before the time when the vaccination was made. A large number of tubes of cholera media were inoculated from these pure cultures and placed in the incubator. On the following morning the cultures were each suspended in one cubic centimeter of saline solution, the whole mixed, and inoculations, as was necessary, made immediately after the preparation of the suspension. It is supposed that some one placed a 48-hour virulent plague culture among the cholera cultures, the blue pencil marks which designated the culture having been erased from the glass by handling. This view is supported by the fact that on the afternoon of the day of inoculation a 48-hour virulent culture was missed from the

incubator It was known certainly that one of the five plague cultures prepared two days previously, as was shown by Dr Strong's note-book, had been removed from the incubator, but it was not until two days later, when he wished to examine the opsonic index of five guinea-pigs, for each one of which a 48-hour richly-grown culture had been prepared, that the plague culture was missed

"It was proved by a technical committee of three physicians appointed by the Governor-General to investigate the matter that a 48-hour richly-grown plague culture spread over the entire surface of the entire slant resembled some of the cholera cultures so strongly that they were unable to identify or to pick out such a plague culture by its gross appearance when it was placed among a number of the cholera cultures of the strain employed It was also shown that a hanging-drop preparation and the stained microscopic one made from the mixed suspension of all the cholera cultures contaminated with the plague one (as used for the human inoculations) did not reveal the suspicion that the fluid was contaminated with plague bacilli, since no bipolar staining organisms were visible and, evidently, the plague bacilli were in too small numbers or those present did not show any sufficiently distinctive morphology to separate them from the pleomorphic cholera organisms in the saline solution Nevertheless, this same suspension, in which plague bacilli were not detected by microscopic examination, when injected subcutaneously into guinea-pigs and a monkey, caused, after several days, death from plague infection It has not been ascertained who placed the plague culture among the cholera ones after all possible tests of the cholera culture had been made An investigation of the entire matter was pursued by the Government prosecuting attorney at our request, and later the Governor-General, in order to satisfy public opinion, appointed a committee of eight, six Filipinos, one American and one Englishman, three of which committee constituted a technical committee, for investigation

"While the serum division of this laboratory is also in charge of Dr Strong, and while this division prepares our regular cholera vaccine, it must be clearly understood that the regular preparation of our cholera prophylactic had absolutely no connection with this matter and that the vaccine used by Dr. Strong on the day of the accident is entirely distinct from the preparation with which he is identified The method used on the last twenty-four prisoners is the one which is best known by the names of "Ferran" and "Haffkine" It is perhaps unnecessary to add that the laboratory has prepared several million units of vaccine virus and several thousand doses of plague prophylactic which have been used (in addition to the cholera prophylactic) with good results and without accident"

I

The study of vaccination against cholera, according to the method worked out in 1890-93, in the Paris Pasteur Institute, began in India in April 1893, that is, some 13 years previous to the Manila accident The procedure which was adopted for cultivating and inoculating the vaccines was described, with great detail, in a pamphlet published in Lahore, Punjab, in 1894, by Mr E H Hankin, M A, Chemical Examiner and Bacteriologist to the Government, Surgeon Lt-Colonel Ch H Owen, I M S, Medical Adviser to the State of Patiala, and myself, under the title of "Technique of Haffkine's anti-cholera inoculation" The pamphlet was reproduced in the *Indian Medical Gazette*, Calcutta, in June, 1894 A more detailed version of the same "Technique" was published in the journal just mentioned two years later, in June 1896, by Lt-Colonel (then Surgeon-Captain) Hare, I M S, the present Sanitary Commissioner of Eastern Bengal and Assam In the issue of the same journal for November, 1896, in an article entitled "Technique of Haffkine's method of preparing fixed cholera vaccine," the same officer described the method of transforming cholera virus into the vaccine strain

The extent to which the above technique rendered the operation safe, and the facility with which it was learned by non-specialists and by subordinates, may be gauged from the following facts

The inoculations were at first carried on by myself, and between 1893 and 1896 were introduced in over 100 towns and villages in the Indian Plains and the Himalayas I prepared the vaccines in trains, while travelling from place to place, in the ordinary passenger carriages, and at Railway stations, while waiting for the arrival of trains, also in tents, in 'dāk-bungalows' and rest-houses, in rooms placed at my disposal for a day or two in dwelling-houses and transformed for that time into "laboratories," and sometimes (in Calcutta and Agra) in established laboratories, in which various work was carried on at the time by other workers Between April 1893 and July 1895, 42,197 people, who received in all close on 70,000 injections, were inoculated under these conditions, and in 1896, a further 30,000 were so operated on A large proportion of the inoculated lived under medical and administrative supervision, so that any unusual effect of the inoculation could not have escaped notice Thus, the operated on of 1893-95 comprised officers, non-commissioned officers and men belonging to 64 British and Indian Regiments, contract labourers of 45 tea plantations in the Brahmaputra and Surma Valleys of Assam, inmates of nine civil jails, children of boarding and other schools, etc

In 1894 the Municipal Corporation of Calcutta voted a grant to its Health Office for applying

these inoculations experimentally A Hindu Medical Inspector, Mr Jonomanjoy Chowdry, was put on to this duty. He was assisted, in the preparation of the vaccines, by two other Hindu officers, Messrs Jogendranath Dutt and Sasi Bhusan Ghose, of the Calcutta Health Office. None of these doctors had been acquainted with bacteriological work before. Apart from the preparation of the cholera vaccine, which, after a period of instruction, they were left to carry on independently, they became soon engaged in a variety of other kindred work, notably in connection with infectious diseases affecting the ponies, buffaloes and bullocks in the "gow-khanas" of the Municipal scavenging department, with outbreaks of rinderpest and other epizootics reported from Calcutta and Howrah, and in connection with the then Health Officer's studies of pustules and vaccine lymph, in the Municipal vaccine dépôt. Cholera inoculation in the bustees and suburbs of Calcutta, with cultures prepared in the Health Office, was carried on daily for two years, and the results were closely followed by various members of the Municipal Corporation. The number of persons inoculated was 7,690. About two-thirds of them underwent inoculation twice, at an interval of five days, so that the number of injections of vaccine performed was about 13,000.

In 1896 anti-cholera inoculation was started at Purulia, on the Bengal-Nagpur Railway. At first Surgeon-Captain (now Major) J. C. Vaughan, I.M.S., Superintendent of the Campbell Medical School, Calcutta, then Deputy Sanitary Commissioner for the Chota Nagpur Circle, was in charge of the work. Two Hindu assistant-surgeons were appointed to operate under his orders. Surgeon-Captain Vaughan was, after a few months, ordered away to the Tirah campaign, and from that time on, one of the assistant-surgeons, Gopal Chunder Mukerjee, was left in independent charge, the other co-operating with him. In this dépôt the operations were performed every day for eight and a-half years, till the end of 1904, and the number of persons inoculated was as follows—

In 1896	4,413
" 1897	10,950
" 1898	4,296
" 1899	2,388
" 1900	13,291
" 1901	3,453
" 1902	3,144
" 1903	2,202 and
" 1904	1,623
In all	45,760

The material for these inoculations was manufactured, examined and used in an improvised laboratory, by workers who had had before no bacteriological training. The inoculated were almost exclusively coolies contracted for transport to Assam, and who were, at the time of inoculation, and during their subsequent journey and service, under the supervision of government and labour supply officials. The slightest

mishap would have at once been known to the emigration authorities and reported upon.

In none of the above operations has an untoward result at any time come to knowledge, and quite certainly no accident of any gravity has ever occurred. Anti-cholera vaccination has thus been demonstrated to be as free from danger as any method devised by man.

II

Just as in vaccination against small-pox and inoculation against hydrophobia, as well as in Professor Kolle's inoculation which the Manila laboratory has advocated and applied against plague, the vaccine used in anti-cholera inoculation is a live virus, and is not sterilized before injection. Nevertheless the details mentioned in the preceding paragraphs and referring to a long testing in India, indicate that the methods followed in the preparation and use of that vaccine render it, even in relatively inexperienced hands, safe from contamination, and eliminate sources of mishap.

Again, neither in the anti-cholera vaccine, in the emulsion of spinal cords containing live hydrophobia virus, as used for anti-rabic inoculation, nor in the live virus of small-pox vaccine lymph, nor in any of the sera and drugs used in hypodermic injections in man and animals can contamination with harmful germs be detected with certainty by the microscope, but obviously this does not mean that either of the methods mentioned, now so extensively practised, is insecure. In the anti-cholera inoculation, the examination by the microscope is an adjunct so important that, when applied in the way in which it has always been applied in India, an accident such as occurred in Manila is impossible, and an extraneous culture like that of plague would be detected immediately. Nevertheless, entire elimination of mishap is secured, obviously, not by microscopic examination alone, but by an ensemble of operations of which some precede and others follow that examination, and by the general dispositions of the work.

III

In the accident at Manila it is essential to note that the cholera vaccine did not get contaminated by plague spontaneously. Such an eventuality may be treated as outside all practical possibilities. Every bacteriologist of experience will take on himself to say that the spontaneous invasion of a bacterial culture by germs of cholera, plague, glanders, anthrax, diphtheria, tubercle and certain other specific microbes is not to be thought of any more than the spontaneous contamination of such a culture with arsenic or strychnine. There are a few pathogenic species,—like those causing abscesses, for instance,—which are, upon occasions, found to contaminate cultures and other materials. In Manila a plague cultivation, presumably free

from admixtures of any kind, was put by the operator into a watery suspension of cholera cultures, the latter probably being at the time quite pure and uncontaminated also.

The accident became possible by the operator deviating, amongst other points, from the following two rules prescribed in the anti-cholera inoculation, *viz*, the contents of the culture tubes should not have been mixed, and each tube, immediately before being used, should have been, apart from other examination, submitted to an examination by the microscope. Under these circumstances a plague culture would have never passed for a cholera culture.

It is not stated that the material injected into the men in Manila had been examined by the microscope, but the Technical Committee of enquiry have found that when they mixed, in an experiment *ad hoc*, the contents of one cultivation tube of plague with that of a large number of cultivation tubes of cholera (as had been actually done at the time of the human inoculation), and examined a drop of the mixture, the plague bacilli were overlooked under the microscope. Such a result is, of course, only too probable.

IV

The details of the Manila accident reported by Dr. Freer tend to show that its occurrence did not stand in connection with the degree of perfection or deficiency which belong to cholera vaccination or to any bacteriological method as such.

In all pharmacies and shops where collections of drugs are kept, simple dispositions are adopted, on the responsibility of those in charge, for making it impossible for dangerous materials to get mixed with harmless ones. Obviously these measures had, at the time of the accident, not been in force at Manila, and it must be presumed that some particular circumstances which existed at the time did not allow of the necessary dispositions being taken.

It is, further, a practice with those in possession of materials of various kinds, particularly harmful ones, to differentiate these by inscriptions or marks of identification. The first action of an apothecary, when handling his phials, is to look at the label, independent of any other mode of examination,—chemical, physiological, or other,—which may be at his disposal for identifying the materials. The labelling of cultivation tubes is one of the articles of instruction mentioned in bacteriological textbooks and lectures. In the pamphlet on the "Technique of the Anti-cholera Inoculation" referred to above the procedure is enjoined on p. 8, paragraph 12, where it is stated "Mark the inoculation tubes unmistakeably, in order that the kind of vaccine they contain and the date of their inoculation shall be known." The operator who omits to provide his preparations with clear inscriptions, or omits to take notice

of them when using the preparations, renders obviously nugatory the whole of the safeguards, however perfect, which have been devised for preparing his materials in a pure condition.

In Manila, where the tubes of vaccine for inoculation in man had to be incubated in the same box as tubes of virulent plague, and other persons than the vaccinator had access to the same incubator and to the same batches of tubes, it is stated that the inscription on the tube was not ascertained previous to using it. The accident was, therefore, in every way of the same kind as would be incurred by a pharmacist mixing up a poisonous substance with the drug which he is preparing, and it was preventible also in the same way as such accidents are prevented in pharmacies.

V

The idea that the Indian method afforded no possibility of avoiding the accident appears to have been based on the following considerations mentioned by Dr. Freer—"While the method allows of every test as regards the purity of the cultures up to 24 hours before their use, after this time (when many cultures are employed) no satisfactory test of their purity can be made and no test on animals can be carried on, since the cultures must be inoculated 24 hours after their preparation." The accident was caused by the mixing up of a plague culture with the cholera vaccine at the very moment of using the latter. Obviously, no test applicable 24 hours or any longer interval before that moment, nor any test applicable a shorter period, even one hour, before, could have prevented the result of a confusion thus made. To avoid such a confusion,—once the general dispositions in force at the time permitted of its occurrence,—a test or tests were required applicable at the moment of using the tubes. The most direct of such tests were those mentioned already, *viz*, (1), the reading of the inscriptions made for that purpose on the receptacles, and (2), the examination under the microscope of the contents, in the manner prescribed for the anti-cholera inoculation. There were also certain other aids, but the special object of the present article does not seem to require entering into them.

VI

The Manila Officers have gracefully recognized as conclusive the results of the Indian cholera vaccination studies, and have themselves contributed not a little to the subsequent investigations on the matter. A few years ago, before introducing that vaccination in the Philippines, the very able director of the laboratory there made, in the Institute for Infectious Diseases in Berlin, a study of the vaccine used in these operations. The vaccine,—as described in the publications referred to higher up,—is a strain of cholera germs transformed

into a virus of exalted, fixed potency, by cultivating it, in accordance with certain rules, in the peritoneal cavity of the guinea-pig. The bacteriologists in Berlin compared this vaccine, from the point of view of its immunization properties, with the natural strains of cholera germs maintained by cultivation in laboratories, and convinced themselves of the significance of the transformation imparted to the vaccine. Consequently, in the Philippines, a strain has been adopted,—for preventive inoculation in man,—which is prepared and maintained in the way in which this is done in India, but instead of operating with that substance itself, they advocate the plan of leaving it to soak in water, at the temperature of the incubator, and using the resulting soluble extraction,—a plan to which, as Dr Fieer mentions, it has been objected at the last International Medical Congress in Berlin that the extraction might not have the protective effect which the vaccine itself had. The Manila officers are under the impression that one of the advantages of the watery extraction is that it is free from the possibility of misadventure which they have had with the vaccine. The same department of the Manila institute that prepares the extraction of the cholera vaccine prepares also soluble products of other microbes, such as the toxine of diphtheria, that of tetanus, of which the admixture of a few ccs would, of course, suffice to kill a horse, probably, solutions of snake venoms for the preparation of anti-venene, and so forth. If these microbial toxins and solutions, or, for the matter of that, any alkaloids or other drugs were to be so kept as to permit of their being inadvertently mixed with one another, if, before using them under such circumstances, the inscriptions on the receptacles were not ascertained, physical differences of the contents overlooked, and the contents mixed together and used, that is, if a concurrence of circumstances took place identical on all points with that which they have had the misfortune of having at the time of the late accident,—the extraction of the cholera vaccine would obviously be exposed to the same possibility of misadventure as has occurred in the use of the vaccine. Of course, it is not suggested that the above is the condition prevailing normally in the Manila laboratory. The latter has, in a few years, and most deservedly, taken a place amongst the first class institutions of its kind in the world. It is only unavoidable now to make it clear that that accident has not been conditioned by the peculiarities of the anti-cholera vaccination method, as, they believe it has.

VII

Referring to the facts mentioned in section 3 of Dr Fieer's article ("Subsequent experiments in the town of Angat. In the prison we had and two among the ones vaccinated"),—they do not unfortunately convey

indications as to whether the extraction of the cholera vaccine confers on man the immunity against asiatic cholera as has been obtained with the vaccine. Such an indication would have been most welcome to me, but obviously Dr Fieer had no data yet for making any definite affirmation on the matter. In the case of the town of Angat, the number of non-vaccinated inhabitants, among whom 121 cases of cholera occurred, and the degree of exposure to infection, in the case of the vaccinated and of the non-vaccinated, have not been made known, and consequently a deduction from the figures given is impossible. In the Government prison in Bilibid, where one-half of the prisoners had been vaccinated and one-half not, after which event 18 cases of cholera occurred among the non-vaccinated and 2 among the vaccinated, the result would have been quite important, and, under requisite conditions, even conclusive, but, presumably, between the time of vaccination and the date of the cholera occurrence, changes of which details are not related in the article had taken place in the composition of the prison population, for Dr Fieer states that no conclusion could be drawn from the facts related about that prison.

It is to be hoped that the above explanations will not be viewed as implying any want of consideration for the Manila scientists, whose efforts, ever since the establishment of their laboratories, have enriched science with numerous contributions of a truly remarkable character.

OBSERVATIONS ON SPINAL ANALGESIA

BY E. L. WATERS, M.D.,

MAJOR, I. N. S.,

Civil Surgeon, Cutlack.

FROM time to time papers have appeared in the English and Indian Medical Journals reporting the results of spinal analgesia produced with drugs of the cocaine series.

The earlier work was done in America by Corning and then by Bier in the Continent. Cocaine was tried at first, but was abandoned on account of the many accidents that occurred, and latterly tropocaine, stovaine, alypin and novocaine have been most in favour. Of these four, tropocaine and stovaine have been most generally used, tropocaine has been employed in some hundreds of cases in Germany, whilst stovaine has also been widely used—particularly by Barker of University College Hospital.

I have used stovaine in fifteen cases during the last few weeks, and, as in some instances, the results have been abnormal, it is advisable to put the facts on record.

It is preferable to obtain the drug in sealed ampoules—known as stovaine billion. These can be obtained from Poulenc Frères of Paris, and each ampoule *should* contain two cubic

centimetres of fluid, in which, for each cubic centimetre, there is 0.5 each of stovaine and glucose (I write "*should contain*" advisedly, for in two instances there was considerably more than two cubic centimetres of fluid, and in one instance considerably less).

Any aseptic syringe is suitable, provided that its contents are not less than four cubic centimetres and that it is graduated with an easily visible scale up to two cubic centimetres. The needle should be the long special needle of either steel or nickel and fitted with a stylet. Two needles should be sterilised and ready for each operation. It is usually laid down that, the needle having been affixed to the syringe, the ampoule should be opened and the stovaine solution drawn up. It is impossible, owing to the shape of the ampoule, to do this with the syringe alone. I find it better to use two needles, both fitting the syringe. With one the puncture is made and then, when the escape of cerebro-spinal fluid indicates that the spinal canal has been reached, the ampoule is opened and the solution is drawn up through the other clean needle.

If one does not use two needles, one may find that, having opened the ampoule, it is impossible to reach the spinal canal and that the sterile stovaine is wasted. Also, using the all-glass syringe, one finds that when the syringe is put down after filling and whilst the puncture is being made, the piston is apt to slip up or down in a most annoying fashion, again causing waste of material.

The actual technique of injection is simple. The patient is seated on the edge of the operating table with the head and shoulders bent well forward, so as to separate the vertebral spines as much as possible. A line is taken joining the highest points of the iliac crests and the puncture made in the middle line at that level. It is, I think, better to choose the middle line than a point external to it, for the needle goes directly in and has to travel a shorter distance. If a lateral point be chosen, the needle point has to traverse a longer course and the difficulties of getting into the canal are greater.

The puncture is made with the stylet in position, the needle can be felt piercing the ligaments and should go in for about two inches—the exact amount varying in different patients. The stylet is withdrawn, and if the puncture has been successful, clear cerebro-spinal fluid will exude, either in drops or in a considerable stream. The stylet is replaced, the ampoule opened and the syringe charged by means of the second needle and then, the stylet, being again removed, is applied to the first needle. The pressure of the cerebro-spinal fluid is sufficient to force out the piston of the glass syringe until the barrel is quite full of a mixture of stovaine solution and cerebro-spinal fluid. The combined solution is then slowly injected, the needle withdrawn and the patient made to lie down on the

operating table. I usually raise the foot of the table with a couple of blocks in order to promote the upward flow of the stovaine.

The average dose should be rather less than the total contents of each ampoule. One and-a-half cubic centimetres of the solution (0.075 of stovaine) is a fair dose, two cubic centimetres is apt to cause syncope, one cubic centimetre may not give sufficient analgesia.

In a few minutes (usually three to five) the patient notices tingling and numbness in the legs, rapidly followed by loss of power of motion and complete analgesia up to the umbilicus.

If the loss of power and analgesia come on very quickly—in from one and-a-half to two minutes—one may expect syncope and trouble. If, on the other hand, the symptoms are delayed beyond ten minutes or the analgesia is limited to the toes and feet, it is probable that the injection has failed in its effect.

The following brief notes of cases recently operated on will be of interest—

Case I—19th November 1908—S S, 35 years. A Sadhu, in fair health. Elephantiasis of scrotum. A smoker of ganja and eater of opium.

Injection of 1.5 cc of solution. Analgesia in seven minutes. Perfectly satisfactory.

Case II—30th November 1908—H M, 30 years. Cultivator. Sarcoma of leg. Of temperate habits but in poor general health. 1.5 cc of solution injected. Amputation through middle of thigh. Most satisfactory. Patient smoked and talked through the operation and offered to walk back to bed afterwards. *Vide* photograph attached.

Case III—11th December 1908—P C H, 45 years. Good general health and habits. 1.5 cc of solution.

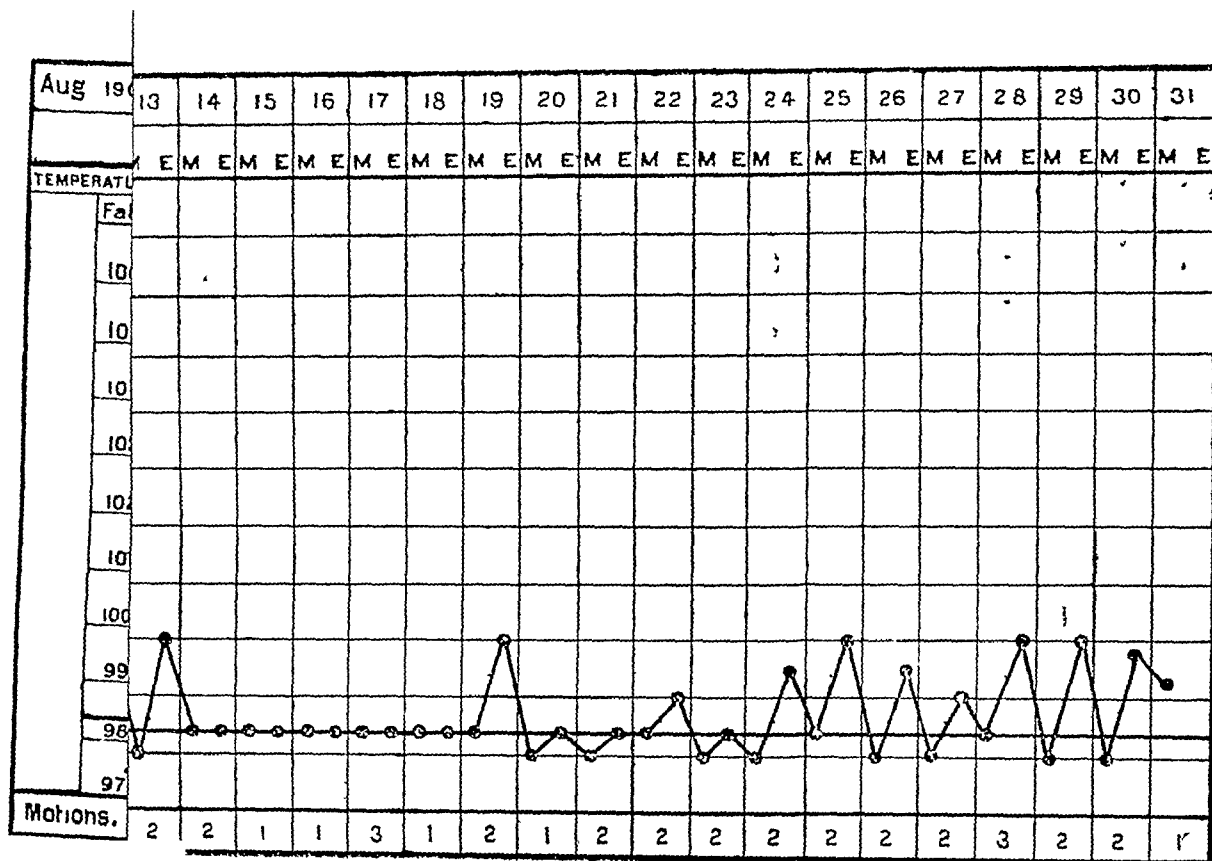
Elephantiasis of scrotum and penis. Skin grafting, etc. Quite satisfactory.

Case IV—15th December 1908—G M, 35. Cultivator. Poor health, admitted to hospital with ascites, albuminuria and anaemia. Large irreducible inguinal hernia. 1.5 cc of solution. Good results. No shock. I should have hesitated to operate on this man under chloroform.

Case V—19th December 1908—D G, writer, 36. Good health. Elephantiasis of scrotum and penis. Skin grafting required. Medium dose. Satisfactory.

Case VI—20th December 1908—A N, writer, 25. Scrotal tumour, etc. Very nervous patient who flinched at every attempt to puncture. Failed to puncture.

Case VII—21st December 1908—H P, 25. Hernia. Operation for radical cure. Medium dose injected. No analgesia. Patient returned to bed and operated on later under chloroform. I could discover no reason for this immunity, but beyond a slight numbness in the toes the stovaine had no effect.



cavity was not completely emptied, but about the same amount as withdrawn left behind

The heart is only functionally disordered, as in ordinary anæmia, the urine more or less healthy, no albumen or unusual amount of bile pigment present. The motions call for no comment. He has had, since the spleen enlargement, slight bleeding, off and on, from the gums

His temperature manifests but a very slight variation from the normal, on occasions there was a rise of a degree or so in the evenings. The blood changes, however, were important, and with the enlargement of the spleen, atrophic cirrhosis of the liver and ascites complete the picture of my diagnosis of the disease

Not to give too lengthy details of the blood, the result of two examinations only are considered sufficient. On the 13th September 1907, a few days after the patient's admission, the following facts were noted—R B C considerably reduced in number, being only 1,500,000 in the cubic millimetre, instead of 5,000,000, hæmoglobin 35 instead of 100, and the colour index, 1.15—0.15 over the normal. Slight polychromasia, megalocytosis and two normoblasts in a leucocyte count of 500 in other words, a picture of mild primary anæmia. The leucocytes were decreased in number, being 5,000 instead of 10,000 in the cubic millimetre. The relative frequency of the different kinds were—

Polymorphonuclear	.. 312	62.4 per cent
Mononuclear	. 47	9.4
Lymphocyte...	. 106	21.2
Eosinophile	35	7.0
	<u>500</u>	<u>100.0</u>

a small relative decrease in the polymorphos and increase in the mononuclears and eosinophiles, but otherwise not indicating any very marked variation from the normal

Two months after, another blood examination was taken (on the 12th November), this showed an improvement in the condition of the blood as far as the R B C were concerned. The red cells had increased by nearly a million, hæmoglobin 40 and the colour index 0.83 per cent. A few of the R B C were oval-shaped, very slight inequality in the size of the cells, no polychromasia and no nucleated elements. The leucocytes now numbered 3,500 to the cubic millimetre, their relative quantity remaining almost the same as on the previous occasion

Polymorphonuclear	. 310	62.0 per cent
Mononuclear	43	8.0
Transitional	. 2	0.4
Lymphocyte ..	100	20.0
Eosinophile .	45	9.0
	<u>500</u>	<u>100.0</u>

From the foregoing, it will be seen that the cardinal signs of Banti's disease are present, i.e., enlarged spleen, anæmia, cirrhosis of the liver and ascites, and finally, to clinch the diagnosis, I

shall attempt to show, by a process of exclusion, that no well-recognised attributable cause is forthcoming to explain the patient's condition

Several other diseases give rise to similar, if not identical, sequelæ. To take a few, we have chronic malaria, leukæmia, kala azar, syphilis, tuberculosis and malignant disease, these I differentiate as follows—

In what I call extinct malaria, that is, in which no parasites are present, no schizonts, gametocytes or gameto-schizonts (schandium the latent forms), it would be hard to differentiate, as Banti's disease is held by some to be the heritage of malaria, in which the exciting cause is extinct or spent out, but the injured or pathologically cirrhotic organs, especially the liver and spleen, remain to tell of the previous ravages of the malarial organism. There is a certain amount of evidence in favour of this hypothesis, but I cannot offer any opinion from the experience of two cases

There is no hesitation in excluding leukæmia, the appearance of the blood change at once disarms any suspicion

Kala azar was suspected for a long time, but as after half-a-dozen careful examinations of the peripheral blood, no signs were present, the spleen was punctured and no leishmania found

Syphilis and tuberculosis do not give rise to such abnormally huge spleens as in the patient under question.

Malignant disease does not give rise to the picture depicted in the signs and symptoms described

The only doubt is from chronic malaria of the extinct type, and another factor to strengthen this doubt is, that the patient's brother, who lived in the same house for years, suffered from malignant tertian

NOTE—This patient died on the 22nd February 1908, of pneumonia. The spleen weighed 136 ounces and the liver 64 ounces. Microscopical examination showed marked increase in fibrosis, no parasite of any kind detected in the splenic smears

A Mirror of Hospital Practice.

A CASE OF BLACKWATER FEVER IN THE UNITED PROVINCES

By H. AUSTEN SMITH, M.B., B.C. (CANTAB), ETC.,

MAJOR, I.M.S.,

Civil Surgeon, Mussoorie

I CONSIDER it necessary to record this case, as it will be of considerable interest to all in emphasizing the fact that Blackwater fever can occur in the United Provinces, although after an experience of some years in these provinces I have never heard of another case. The patient was Mr. T. S. P., æt 27, from Dunkeld,

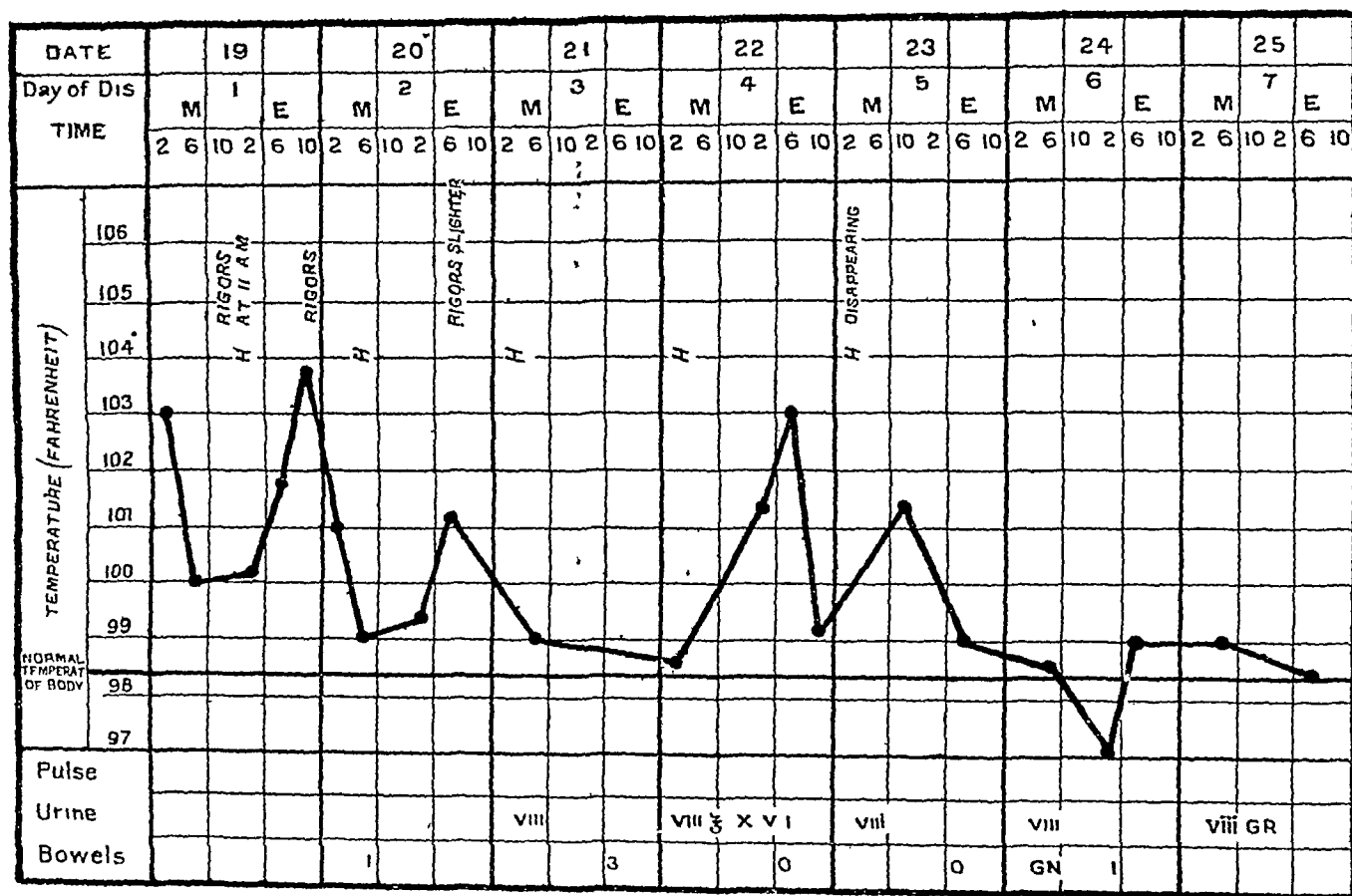
Perthshire, the head engineer of the firm of Bruce Peebles & Co., Edinburgh, employed in carrying out the erection of the hydro-electric scheme at Mussoorie. Mr. P. and his assistant, Mr. R., both lived in a bungalow built for them at the power station at Gulugi, situated in a deep valley between the lower hills, about 3,000 feet below Mussoorie, and about 3,500 feet above sea-level. It is a very malarious place and the bungalow and servants' houses and power station are surrounded on two sides by water, the stream from which the power is taken. Mr. P. remarked that at Gulugi mosquitos were very numerous and were chiefly of the anopheles class and very large ones. Many of the hill-men on the work there suffered severely from malaria, and Mr. P., who by his energy and example kept them at work, used large quantities of quinine in his efforts to combat the fever. I am informed that four hill-men died of fever there, showing that the fever was of a malignant type. I may say that Mr. P., being a very quiet man, of great energy, applied himself entirely to the work and never revealed, as far as I know, to anyone the fact of the unhealthiness of Gulugi or the large amount of fever that he had to contend with, so that no medical officer was consulted and the issue of quinine was made on advice from Prof. Ronald Ross's book which Mr. P. had read carefully. Mr. P. had himself been suffering from fever for the last ten months, getting regular severe attacks lasting two to three days and then passing off, and occurring regularly once a week or fortnight. The fever would commence one day at midday with a rigor, necessitating his stopping work, and continue until night when he perspired freely, the temperature going up to 103° F. The next day he would have another similar attack but milder, and it would then pass off or continue as a still milder attack the third day. During this time he had been carrying on his work, which was of a very heavy and exacting nature, and he had taken sulphate of quinine regularly during the attacks only, taking McKesson and Robins' tabloids in ten-grain doses at night when the fever was on, and never at other times, as it affected his head and increased his deafness. It is of interest to note that four years ago he had been employed by his firm on engineering work at Hyderabad for nine months, and that during this time he had one very severe attack of malarial fever. He was then employed at home again and had one or two slight attacks of fever there. In November 1906, he came out to the Mussoorie hydro electric scheme and for the first fifteen months enjoyed excellent health, but he was working more in Mussoorie and was only at Gulugi at intervals. On February 16th last, Mr. P. had a slight attack of fever, starting about midday, but he took no notice of this, as he had some very urgent work on, on the 17th, he again had fever, but did not take

any quinine at night, as the quinine upset him so and he wished to be fit for work. On the 18th, he worked hard all day in the sun, but had to leave off in the afternoon, as he felt so ill, and went to bed, on taking his temperature he found it was 102° F. He then at night took 10 grains of sulphate of quinine, as he usually did in these attacks. He passed a very restless night, vomiting constantly the whole night and perspiring profusely, and on the 19th, at 11 A.M., on passing urine he noticed that it was almost black in colour and thicker than usual. He called the attention of his assistant, Mr. R., to this, and Mr. R. being alarmed, sent word at once to me at Mussoorie to come down to Gulugi as soon as possible. It is a very difficult journey down and I did not arrive till the afternoon when I found Mr. P. had a temperature of 100.6° F., was sweating profusely, vomiting everything he took, and passing dark hæmoglobinoic urine, fortunately he had been able to secure the services of a very first class lady-nurse and I found her in charge. I made no diagnosis at the time, but was almost certain that it was a case of Blackwater fever, so I arranged to get Mr. P. up to Mussoorie, as it would have been impossible to do the best for him at Gulugi, and he was taken up very carefully on the early morning of the 20th and placed in a nursing home. I appreciated the danger of moving him, but it was absolutely necessary to do so, and his condition I considered was then good enough to stand it. He stood the journey fairly well and was put to bed in a very warm room at once, his condition was then as follows—temp 99.4, pulse 110, soft and weak, skin and sclerae were of a deep saffron yellow tint, there was severe pain in the loins, over the region of the liver, and especially over the bladder, the spleen was enlarged and extended one inch below the costal margin and was very tender on palpation, there was a frequent desire to pass urine, the vomiting still continued, though less, he was perspiring profusely, was constipated, and the urine, when passed, was very dark in colour indeed. On examination of the urine under the microscope, no corpuscles at all were seen, the colour was a very deep claret, and there was a heavy deposit of dark amorphous debris. Owing to the excessive vomiting, he had been able to take very little fluid, but he was now able to take more, and the amount was gradually increased until he was taking as much fluid as he possibly could, chiefly water, diluted milk, and rectal injections of saline solution were given every four hours, one pint at the time, as he was able to retain and absorb this amount. He kept passing urine every four hours, and, if anything, the colour became deeper, hæmoglobin apparently dissolved in the blood serum acting as a diuretic, showing that a very extensive hæmolytic process was taking place. He had a very bad night indeed, rigors occurring frequently, although

A CASE OF BLACKWATER FEVER IN THE UNITED PROVINCES

By MAJOR H AUSTIN SMITH, M.B., B.C. (CANTAB.), F.T.C., I.M.S.

Civil Surgeon, Mussoorie



not so often as the night before when they lasted as long as forty minutes each, and he was delirious at times. On the 21st, his condition was very grave, especially as during the night his urine had decreased in quantity, and it seemed as if he were threatened with suppression, the reason of this was that he refused fluid and did not for a time retain the saline rectal injections. Later he was again able to retain the injections and also to take a large amount of fluid again, and so his condition improved to some extent, and the urine increased in amount, but was still black in colour. Two specimens of peripheral blood were taken stained with Leishman's stain, and examined with a 1/2th oil immersion objective very carefully, no malarial parasites could be seen, but the polynuclear leucocytes appeared to be increased in quantity, possibly owing to the great destruction of red corpuscles going on. Calomel has been given, and this had acted well, saline diuretics also appeared to help when the urine decreased in amount. He again had a very restless night indeed, with high fever and profuse sweating, and his pulse now showed signs of failing, so hypodermic injections of Liq. strychnine and digitalin were given as required, the urine was still as dark in colour as before, but the amount passed kept up, 60 ounces being the measured quantity in the last 24 hours. On the 22nd, the urine showed signs of lightening in colour, and he was retaining the rectal injections and taking a large amount of fluid by mouth, but the heart failure persisted and his condition was very grave indeed. The heart failure was treated by heart stimulants, brandy in gradually increased doses, nutritious and stimulating food, and oxygen was kept ready in case of need. On the 23rd, he had passed rather a better night, although very restless, still he had required no hypodermic injections of strychnine, he was taking fluids well and passing plenty of urine and the hæmoglobinuria had now practically disappeared after having lasted for four days exactly almost to the hour. During the day his condition was still very grave, as the heart failure still persisted, but with the stimulants it fortunately reacted when very bad. On the 24th, his condition had decidedly improved, and the force and volume of the pulse was better, the improvement being more permanent. He was now taking lots of food, milk, soups, essences, egg flips, brandy and champagne, and the urine was quite clear, excepting for a heavy deposit of urates. On the 25th, he had passed a good night and he was altogether better, the fever had left him and the profuse sweats had stopped, the pulse also was better, stronger and more regular. He was now able to take some solid food, bread and butter, eggs, etc., and the crisis had definitely passed. He continued to improve steadily, still being kept absolutely still in bed, very warm, lots of food of a light digestible

nature, brandy, and for medicines, iron, arsenic and strychnine. I give the case more or less in detail, as it is not often probably one has the chance of watching a case of Blackwater fever right through, certainly not in these provinces.

As regards the disease, the two great dangers are suppression of urine from a mechanical blocking of the tubules and heart failure, the suppression for the first two or three days, while there is hæmoglobinuria and heart failure after this from the third day forward. How this patient overcame the persistent heart failure was a wonder to me, as it never seemed to me possible that he could recover from it.

Regarding treatment, the most satisfactory plan appears to be to treat symptoms as they arise, with absolute rest in bed, continued attention to warmth, alkaline diuretics, lots of fluid, heart stimulants and brandy in gradually increased doses after the second day.

I think great value is derived from saline injections per rectum if they are retained and absorbed, it not, by subcutaneous injection. In this case recovery was to some large extent due to the saline injections, and to the heart stimulants, also to very careful nursing indeed, for these cases must be incessantly watched. No quinine was given, as no parasites were found in the blood.

Certain points in this interesting case strike one as worthy of note.

Firstly, the phrase "if preventable why not prevented" comes before one forcibly as regards the position of the bungalow at Gulugi in which the European engineers lived. It was placed, when built some three years ago, right at the bottom of the valley, surrounded, as I have said above, on two sides by the water of the stream which is to some extent here stagnant in pools, giving a fine breeding place for the anopheles mosquito. Its position was, of course, indicated as being adjacent to the power-house under construction, but for the health of its occupants I think it should have been placed out of harm's way on a spur of the hill above the position of rock and easily accessible. It may be noted that on the hill, villages are placed well above the hill streams, on the tops of the lower hills or on the sides of the higher ones. Mr. P. says that there were always many anopheles mosquitos to be seen in the bungalow, and that they were specially numerous during the months of April and September and October.

Secondly, the history of Mr. P.'s case. As noted above, he had had a severe attack of malaria in Hyderabad four years ago, two slight attacks while at home in Scotland for a few months, then excellent health during the first fifteen months of his work on the hydro-electric scheme at Mussoorie, but during this time he was not constantly resident at Gulugi, being often at Mussoorie for weeks at the time. For the last ten months when constantly resident

at Gulugi, he suffered from regular attacks of malarial fever of an irregular but severe type. This, together with the fact that all the natives employed suffered severely from malaria, and that four of them died of presumably pernicious malarial fever, assists materially the theory of the malarial origin of Blackwater fever, that it is the outcome of malarial intoxication under certain special circumstances, and, possibly, Mr P being very susceptible to malarial fever, presented a favourable condition for the onset of Blackwater fever. It may be noted that no other cases of Blackwater fever occurred at Gulugi, and this we may be certain of, for all the natives working there have been under Mr P, and no one ever lived there before the work on the scheme started some three years ago, and, also, Mr P is a very observant man and would be certain to have noted and reported any such occurrence.

Another point of interest is the relationship of Blackwater fever to quinine. Mr P. had been in the habit of taking sulphate of quinine always, generally in tablets taken alone, but sometimes in the powder with water only. He had never taken more than ten grains a day, and had always taken it at night when the attacks were on, because it affected his head, so that he could not do his work, and between the periods of fever he never took quinine. He, therefore, although he had taken the sulphate of quinine in ten-grain daily doses during the periods of fever for ten months, had never taken what may be called large doses, but it appears certain that he was peculiarly susceptible to the action of quinine. As already stated, he had taken ten grains of sulphate of quinine on the night of the 18th after three days of fever, and on the 19th, at 11 A.M., the hæmoglobinuria commenced. Can the sulphate of quinine in this case have been the match required to light the flame?

AN EXCEPTIONAL CASE OF URTICARIA

By J. W. WATSON, M.R.C.P. (LONDON),

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Medical Officer, Turbat & Hardan & Consulate,

AND

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CAPTAIN, I.M.S.,

Agency Surgeon, Meshed

ONE of us (J. W. W.) was the patient in this case. For some days there was a troublesome dry cough, particularly violent at night. The cough was relieved by a Linctus containing heroin. The patient, at that time dependent on a Hospital Assistant, examined his own throat in the looking-glass and observed general redness and injection as in an ordinary case of pharyngitis, the uvula appeared very long and suggested itself to him as a possible cause of the intense irritability of the pharynx.

Thereupon he called on the Hospital Assistant to remove the lower third of the uvula, which was done under eucaine. Some slight benefit accrued from this manoeuvre, but the throat remained irritable.

On the third day (21st January), after the partial removal of the uvula, urticaria appeared. This was at first the ordinary small type of the disease. That evening there was some fever (100.8), this being the only occasion on which the temperature was raised. The next day (22nd January) the patches of urticaria were much increased in size, and were numerous all over the body. That evening the cough was very troublesome, and next morning (23rd January) there was intense oedema of both lips, soon followed by swelling of the tongue, at first unilateral, but becoming general later. The lesions resembled those of Angio-Neurotic oedema. The tongue quickly subsided on the sucking of snow, but the lips remained swollen for some twelve hours. In the evening the throat felt very dry and irritable. A Linctus gave relief and some sleep was obtained from midnight till 2 A.M. At this hour the patient woke up with a very dry throat, followed in half an hour by rapid oedema of the soft palate, particularly marked on the right side and in the stump of the uvula. The palate was scathed with some relief, and the oedema lessened by 6 A.M. During the morning (24th January) the oedema of the palate slowly subsided. This was followed closely by rapid oedema of the upper lip and left hand, the oedema disappeared from these situations by the evening. During the night there was a recrudescence of oedema in the lip, accompanied by oedema of the right hand. The next day (25th January) the patient came under the observation of the other of us (G. D. F.), about midday. There was then oedema of the lip and of the right hand, and in addition urticarial patches fairly generally distributed all over the body. The oedema of the lip and right hand differed in no degree from the lesions described in a typical case of Angio-Neurotic oedema, reported by one of us in a former number of the *Gazette*. The general urticaria was of a severe type, the patches being as big in many cases as the palm of the hand and of extraordinarily hard consistence. So irritable was the state of the skin that the slightest touch was followed shortly by an urticarial patch. The throat on examination was found to be injected and very red, the left tonsil, prominent with a large sloughy mass, protruding from one of the crypts. The stump of the uvula had a slough in the middle of it and was intensely inflamed. Nothing abnormal was detected in the larynx beyond redness and injection.

The slough was removed from the tonsil, the base of the uvula scraped and touched with a silver nitrate stick and the whole throat well swabbed out.

There was considerable improvement after this procedure, and no more giant oedema, although the urticaria persisted in a milder form for a week longer.

Three days later (28th January) the uvula was again scraped, and a very hard slough removed. Silver nitrate, grains 10 to the ounce, was thoroughly swabbed over the throat on this occasion and on the two following days. The throat rapidly improved with this treatment combined with a frequent potassium chlorate gargle.

Calcium chloride, 20 grains t d s, and saline aperients were taken from the outset of the urticarial symptoms, without any apparent benefit till the throat had been thoroughly cleared out, when the calcium chloride appeared to exercise its usual effect.

After the subsidence of the other symptoms, a dry cough persisted for some days, apparently due to a slight granular pharyngitis.

The case is interesting. Here is a patient with every form of urticaria from the mildest nettlerash up to the typical manifestations of Angio-Neurotic oedema, typical in distribution and in their fleeting character. It appears to us that the symptoms were due to the absorption of toxins from a septic throat, which similarly to other cases of sapraemia cleared up on removal of the septic focus, in this case represented by sloughs on the uvula and tonsil.

Another interesting point was the absence of fever, except to a very mild degree on one occasion only, in the presence of a toxæmia sufficiently virulent to produce the intense urticarial symptoms.

We regret that no bacteriological examination was made.

A CASE OF ACUTE ASCENDING (LANDRY'S) PARALYSIS

By A J H RUSSELL, M A, M B,

LIEUT, I M S

119th Infantry, Bangalore

THE following case, which I had recently under my care is, I think, of sufficient interest to be reported.

The patient, a sepoy, aged 23 years, with 5 years' service, was admitted to hospital on 15th February 1909, complaining of pain all over the body and numbness in the lower limbs, of two days' duration. His medical history sheet was clean, this being his first admission to hospital. He gave the following history, which proved to be accurate on enquiry from his native officer—

He went on parade on the morning of the 12th February, and on returning, had a cold bath. Soon after, he felt pains all over the body, but paid little attention to these and went next morning to parade as usual. The pains during parade became more severe, and on his company being dismissed, he had to be assisted

to his barrack room. Next day, the 14th, being Sunday, he did not report "sick," but laid up in barracks in much the same condition as he had been on the previous day. On Monday morning, the 15th, he was no better, and was carried down to hospital on a stretcher. On admission he was found to be unable to walk without support, and he said his lower limbs as high as the knees felt numb, there was no affection of the hands or arms. As he had some bronchitic symptoms, he was treated for these and kept under observation. It was noted that both knee jerks were absent, and there was considerable pain on pressure of the calves of the legs. On the morning of the 18th, the following notes were made on his condition—

"Patient has not been able to move off his bed since he was admitted. He has had nothing but a milk diet and his bowels have not moved. He has a hacking cough, with a semiputulent sputum. There is slight comparative dullness on the right side of the chest, but there are no other respiratory symptoms."

Nervous System—He lies flat on his back, apparently helpless. When asked to raise his legs, he manages to lift his knees about half an inch from the bed, but cannot move his feet. Knee jerks absent on both sides, no ankle clonus or patellar reflex. Plantar reflexes not present. Sense of touch somewhat modified, in that his reaction time is much prolonged, but he locates the part touched perfectly. Sense to "heat and cold" also modified for the lower limbs, below the knee. He makes mistakes with the hot test frequently, but is usually correct with the cold test. Reaction time for these also much prolonged. Pressure of the calves of the legs causes much pain. The grip of the hands is much weakened. Supinator and biceps jerks present on both sides. Sense to touch heat and cold, also abnormal in the hands but less affected than in the lower limbs. Pupils large and slightly irregular. Reaction to light normal, reaction to accommodation could not be tested. Jaw jerk absent. Patient is fully conscious and there is no dulling of the mental faculties. "He gives intelligent replies to all questions put to him."

The paralysis of the legs and arms gradually got worse, ascending rapidly, and his condition became so serious on the early evening of the next day that I was sent for. I found him almost collapsed and the extremities were very cold. Pulse 88 and very weak and breathing very difficult and laboured. He was trying to cough a good deal, but seemed to be unable to clear his throat of secretion, the air on inspiration being gurgled through the phlegm in his throat. Apparently the paralysis had now reached the muscles of the throat. His legs were by this time quite paralysed and he was unable to raise even the arms more than an inch or two. There was no paralysis of the muscles of the chest, but the breathing was very laboured, and on examination of the bases of the lungs, they were found

to be full of moist râles, showing that œdema of the lungs had advanced considerably. No œdema of the lungs was present when he was seen in the morning. The heart sounds were distinct, though weak. He was given hypodermically, 5 minims of Liq. strychninæ and half ounce of brandy with 10 minims of oleum terebinthinæ, made into an emulsion with yolk of egg. This the patient was able to swallow slowly and with difficulty. He, however, rapidly got worse, the lungs becoming more œdematous and the efforts at expulsion of secretion from the throat weaker, and at 10 P.M. he died suddenly after one or two violent respiratory efforts. There was all through full control of both sphincters and his mental faculties were quite clear up to the moment of his death. The temperature remained normal throughout the course of the illness. As there was some doubt at first as to whether the patient was accustomed to indulge freely in alcohol, on admission the tentative diagnosis of a multiple neuritis was made, but the rapid course of the disease with the typical symptoms and fatal termination, later led to the diagnosis of an acute ascending paralysis. No *post-mortem* examination was obtainable.

A CASE OF PANCREATIC CYST IN THE CIVIL HOSPITAL, SECUNDERABAD, TREATED BY DRAINAGE

BY J. HAY BURGESS, M.B., F.R.C.S.,

CAPT., I.M.S.

THE following case of pancreatic cyst, a condition about which literature is not profuse, may prove interesting to the readers of the *Indian Medical Gazette* —

A man, aged 21 years, came to hospital in March 1908 with the history that about four years previously he received a blow from the butt end of a rifle in his epigastrium. For a period of 15 days he had some slight pain in this region, but had no vomiting and suffered in no other way. One year ago he, having up to this time been in perfect health, had continuous fever for about 20 days. About three months later he noted some tenderness in the pit of his stomach which also appeared to be considerably swollen. Pain was also complained of, which radiated all over the abdomen, and occasionally shooting pain in both shoulders was complained of. His appetite was diminishing and he began to become thin. Finding no relief, he eventually, as above stated, came to hospital in March.

On examination, a distinct tumour could be both seen and palpated below the ensiform cartilage. Its lower margin could be felt just above the umbilicus. It was obviously unconnected with the spleen, as there was resonance between the splenic dulness and the left margin

of the tumour. Also, for a similar reason it appeared unconnected with the liver, as a thin band of resonance could be made out below the lower liver margin and the tumour. The tumour had a peculiar elastic feeling about it. Pain and tenderness were severe. The former, indeed, at times was agonising, recourse being had to morphine injections.

A cystic tumour of the pancreas was diagnosed. But as the man would not allow an operation to be performed on him, an aspirating needle was inserted into the most prominent part of the tumour in the middle line, a slight distance below the liver margin, by the Officer-in-Charge of the Civil Hospital at that time in Colonel Thompson's absence. About 32 ounces of a brownish grumous fluid was thus aspirated. The swelling naturally disappeared and the pain became less, in fact, so much so that the man in a few days took his discharge.

In June 1908 he was again admitted with the same complaint.

He is a thin emaciated man, has a good appetite, no vomiting. Constipation is complained of, one motion being passed every two or three days. Urine normal. Temperature normal. Tongue slightly coated. Complaints of great pain. The condition of the tumour was as before.

Colonel Thompson operated on the man from the front. A 3-inch incision was made in the middle line above the umbilicus. On opening the peritoneum, the stomach presented being tightly pushed up against the abdominal wall. It was thus apparent that when aspirated previously the needle must have traversed both walls of the stomach without any detriment to the patient. The stomach was then pushed upwards, and after packing sponges all round, an opening was made through the gastrocolic omentum in a place more or less free of vessels. The cyst wall then presented. Into this a cannula and trocar was then pushed and a brownish-coloured fluid evacuated. When the fluid showed signs of diminution, the cyst was explored with a finger inserted through the opening and found to be incapable of removal. The opening was then consequently sewn to the margins of the incision in its lower part, the remainder of the incision being sutured. For some time the man's condition was precarious, especially so as two days after the operation he had a profuse hæmorrhage from the wound. This occurred in spite of the fact that previous to the operation calcium chloride had been freely given to the patient to diminish any tendency to hæmorrhage which the patient might have owing to the vascularity of the pancreas. Again, two days later, the hæmorrhage was repeated, which complication was treated in the usual way. The discharge from the sinus gradually diminished, but the skin all round was becoming excoriated, so that eventually a dressing of egg albumen was applied on the chance that any

pancreatic fluid passed would digest this and leave the skin alone

The patient gradually put on weight and eventually took his discharge with still a small sinus left from which fluid oozed away

I again saw the man in October 1908 and found him quite fit with the sinus completely closed up. In fact, so fit and fat was the man that I should never have recognised him

Unfortunately the fluid from the cyst was thrown away before it could be examined

For permission to publish this case and for the pleasure of assisting him at the operation I have to thank Colonel Thompson, I.M.S.

TWO CASES OF STREPTOCOCCAL INFECTION

By STEELE HAUGHTON,

LIEUT. I.M.S.,

Officiating M.O., XVth Sikhs, Nowshera

THE following notes on these two comparatively rare cases may, I think, prove interesting to some of your readers—

Case I—Havildar Memha Singh, XVth Sikhs, came to Hospital on 31st October 1908, complaining of acute pain in both eyes

On 29th October 1908, i.e., two days prior to my seeing him, he had a little pain in the left eye, and the following day the eyelids of both eyes became swollen and painful, but he did not think it necessary to report sick as he had often had slight conjunctivitis before

CONDITION AT TIME OF ADMISSION

Left Eye—Both eyelids very swollen and puffy with a yellowish discharge, on opening the lids conjunctivæ everywhere bright red with a good deal of chemosis

The cornea had a granular appearance and there were large patches of infiltration and ulceration

Pupillary opening was only partially visible and patient was unable to see objects, but light was just perceptible

Right Eye—Less swelling of lids with chiefly a watery discharge—some pus. No chemosis, but great vascularity of bulbæ conjunctivæ on inner side especially, cornea showed small patches of infiltration all around the periphery with a certain amount of superficial ulceration. Region of pupil free from inflammation. No mites

In both eyes—Great pain, marked photophobia, tension normal

I thought the case was one of gonorrhœal infection, but the man had no gonorrhœa and a microscopical examination of the discharge revealed streptococci in abundance

The case differed somewhat in appearance from gonorrhœal ophthalmia, in that the discharge

was more watery and the chemosis not nearly so marked as is usually seen

Treatment—After prolonged irrigation, I put Calomel gr 5 into each eye, atropine, cocaine, and placed him in a darkened room

Following this irrigation with Hg lotion two or three times a day, painting with Ag No₃ gr 10 to 31 daily, atropine and yellow oxide ointment

At first the pain was very acute, but after this recovery progressed slowly but steadily

He was discharged after three months, the right eye having completely recovered and with the left perception of light and ability to count fingers at 2 feet

Case II—Recruit Ishai Singh, 31st Punjabis. This boy walked to Hospital on morning of 24th January 1909 at 10-30, complaining of fever and headache which only started the previous evening. His temperature was 103.8°

I did not see the case till 11.30 same morning when he was only semi-conscious, very cyanosed, with great difficulty in breathing which was fast, very loud and noisy, in fact, the case presented all the appearance of acute laryngeal obstruction

I performed tracheotomy at once, but it gave no relief, indicating obstruction lower down

Artificial respiration was also of no avail. I then opened the left basilic vein, but not more than 31 of blood flowed out, which was very thick and dark

The boy gradually sunk and died at 12 o'clock. The *post-mortem* revealed—

1 *Heart*—Normal in every respect

2 *Lungs*—On both signs of old-standing interlobar pleurisy, very congested, especially lower lobes and a peculiar semi-crepitant feeling on squeezing tissue between the fingers

On section the lungs were found to be full of fluid (frothy) much mixed with blood, the fluid was so abundant that it trickled away at once from the cut surfaces

There must have been several pints of fluid in each lung

No patches of consolidation

3 *Œsophagus Larynx*—Normal

4 *Trachea*—From about 2" below larynx and extending into bronchi and bronchioles the lining membrane was very congested with numerous petechial patches, more extensive the further into the lung one went

5 *Abdominal organs*—With exception of spleen which was slightly enlarged all the organs were normal

6 *Smeals* taken from cut surface of the lungs and examined microscopically showed streptococci in large numbers. In this case the boy died from asphyxia due to being practically drowned by the exudation of fluid from the lung tissues into the air vesicles

A CASE OF TRAUMATIC ANEURISMAL VARIX

By W E SCOTT MONCRILFF, M D (EDIN.),

MAJOR, I M S,

Parachina

THE following case is, I think, of unusual interest. A H. Turri Pathan, male, age about 30 years, was admitted to the Parachina Civil dispensary on 31st July 1908, suffering from two wounds in the middle third of the right thigh.

When I saw him some days later, there were two wounds in the middle third of the right thigh, one postero-external, the other antero-internal. The man could not, or would not, tell whether he had been wounded with a knife or a gun, but the wounds had the appearance of bullet wounds from a small-bore rifle. I could not decide which was the wound of entrance. Careful examination showed that the bullet must have passed behind and very close to the femur. There had been considerable hæmorrhage.

The wounds were dressed antiseptically on admission, but they had already become infected, and from the 2nd to the 9th August there was a daily rise of temperature.

On the 6th August, when I placed my hand on the thigh, I felt a thrill. It was a continuous whining sound with a systolic intensification, and it ceased when firm pressure was made over the femoral artery at any point above the wound.

The limb was cleansed and wrapped in cotton wool from the toes upward. Carefully applied pressure was made over the line of the femoral artery and was kept up from the 6th to the 11th August. Morphia and calcium chloride were given internally.

This treatment was painful and the patient several times loosened the rubber bandage.

On the 12th August I found that the thrill was more marked than before. There was no distinct tumour. On auscultation a loud continuous rushing sound was audible and with the cardiac systole a still louder whining sound was heard. These sounds were loudest at the level of the wound, but they were very distinct from Poupart's ligament to the popliteal space, especially in the latter region. No pulse could be felt in the ham or at the ankle. The limb felt numb and was comparatively cold to the touch.

The internal saphenous vein was markedly varicose, but I afterwards found that two years ago the patient was rejected for enlistment in the Kurram Militia for varicose veins.

The diagnosis of aneurismal varix of the femoral artery and vein was clear.

By the 9th September both wounds were quite healed. Pressure treatment was again tried but with no benefit. The thrill was now more palpable and audible in the neighbourhood of

the internal femoral condyle than before. As before the limb was cold and numb.

As I thought it unlikely that the patient would keep himself under observation or return in time for operation should the necessity become urgent, I recommended operation. The patient wished to be radically cured and the operation was done on the 22nd September. An incision was made over the whole length of Hunter's canal. The artery was easily found at the upper part of the canal and was ligatured with reindeer tendon. I made a mistake in tying the artery before further investigation and before ascertaining if proximal ligature would cure the condition. I found after the ligature was applied that the thrill, though much less, was still palpable. I then tried to isolate the artery below the point of communication with the vein, but here I had scar tissue and dilated veins to deal with, and I unfortunately pricked the dilated vein which here lay internal to the artery. Several jets of arterial blood spouted out before I applied pressure forceps. I then found the Anastomotica Magna enlarged and pulsating. I divided it between two ligatures. This stopped the thrill.

Now, on removing the forceps from the vein, venous hæmorrhage followed. A silk ligature was applied but would not hold and only made the hole in the vein bigger. I had to apply two pressure forceps before the hæmorrhage was controlled.

The anaesthetist now reported the condition of the patient's pulse to be unsatisfactory, so, leaving on the forceps, I sutured the greater part of the skin wound, put on an antiseptic dressing and a splint and left a tourniquet round the thigh as a precaution. The forceps were removed on the fourth day. For two days following the operation there was some pain and slight fever. Thereafter recovery was steady, and on 15th October the wound was healed and the patient walking about with no abnormal symptoms except a slight weakness in the leg.

NOTE ON TWO CASES OF CHRONIC DYS- ENTERY, TREATED WITH FORSTER'S ANTI-DYSENTERIC VACCINE

By E A R NEWMAN, M D (CANTAB.),

MAJOR, I M S

THE following notes will, I think, be of general interest. I was induced to give the method (vaccine-therapy) a trial after a perusal of Capt Forster's paper in the *Indian Medical Gazette* (May, 1907). He kindly supplied me with vaccine and directions for use.

Case No 1—European lady, æt 28 years. Previous history—11 years since first arrival in India. Suffered from four acute attacks of dysentery during first five years. Was then laid up for 10 months with chronic dysentery, recurring subacute attacks alternating with

short periods of constipation, and the evacuation of inspissated mucus with the stools. During this period she was totally incapacitated, unable to walk and only allowed out in a rickshaw. Subsequent improvement was followed by another acute attack within a year, which was succeeded by further manifestations for five or six months until she went home in April 1905 about 8½ years after coming out to India.

For six months, while living in the North of Scotland, was quite free from any dysenteric symptoms. On her return to India at the end of 1905, had a sudden and very severe attack of acute dysentery which nearly proved fatal. Since then practically continuously suffered from looseness of the bowels with mucus constantly present in the stools. Came under my observation in April 1906.

By dint of a most careful diet and leading a very quiet life, she managed to get along with occasional relapses lasting for a few days. The least over-exertion, indiscretion of diet, or exposure to damp brought on mucoid diarrhoea with aching pain in the left side. In the rains of 1906 showed some symptoms of spue which cleared up in time to prevent the necessity of going home as advised. Was treated from time to time with salines, castor oil emulsion, bismuth, bael in season, and liq. hydrag. perchlor., which latter drug seemed to be rather more useful than anything. First injection given in the left flank on July 30th, 1907. Temperature E 99° F. Some neuralgic headache. Felt exactly as if an attack of dysentery were coming on. (The patient volunteered this statement.) Locally considerable pain at site of injection radiating round the waist and down into the left groin. In 24 to 36 hours this subsided, leaving only a little local tenderness at the site of puncture. In three days' time felt decidedly better, and the looseness of the bowels had ceased.

Second injection given in the right flank on August 13th. Slight pain only for two or three hours. Got wet through to the skin the same evening. Temperature E 99° F. Neuralgic headache and general aches and pains. Looseness of the bowels for 7 days, and then felt much better. Motions formed once more, no treatment beyond injection given. Third and last injection given in the left flank on September 3rd. Slight discomfort only at the site of puncture. Bowels loose for two days. Since then steadily improved. All traces of mucus disappeared from the stools, and temporarily constipation replaced the daily or bi-diurnal soft motion. Within two months was enjoying such a feeling of health and bien-être as she had not experienced for years. Appetite good and can eat anything in season, including potatoes, which formerly would have brought on diarrhoea at once. Weight in 6 weeks from last injection 8½ st, the highest ever reached. Was not weighed before the treatment was begun, but certainly gained at least 1 st and probably

more. Has since maintained good health and can undertake exertion previously impossible without ill-effects. A concrete instance of this is that she recently attended a dance till 4 A.M. without suffering in consequence.

Case No. 2—Native girl, æt 18 years. Admitted to hospital in September 1907 with a history of chronic looseness of the bowels and mucoid stools, occasionally mixed with blood, for a period of one year. On admission anæmic and debilitated, with oedema of the feet and ankles. Symptoms persisted in spite of treatment and a milk diet. First injection given on September 29th, about two weeks after admission. Temperature E 102° F, but little local discomfort. Rapid improvement in bowel symptoms. Motions formed in a few days and blood and mucus disappeared from stools. Second injection given in two weeks' time. Constitutional and local discomfort trifling. Improvement maintained, though general health still poor, for about one month, when she had a slight relapse, probably induced by eating uncooked vegetables. Was given a third injection with satisfactory results. Had no return of dysenteric symptoms before she left hospital at her own request some five weeks after the last injection.

Remarks—Case No. 2 was typical of so many cases who come for treatment, improve temporarily with rest and a suitable diet, etc., and relapse on discharge. She may be regarded in a fair way to permanent recovery, though the claim to a permanent cure would not be warranted by the limited time she was kept under observation. Case No. 1 is as typical an instance of chronic relapsing dysentery as is likely to be met with. The recurring acute attacks finally lapsing into a pronounced condition of chronic infection, temporary improvement with another acute attack, followed by a further period of diarrhoea, apparent cure while living in a cold climate to be again succeeded by another acute attack and all the old train of symptoms on returning to India, all point to an infection which was usually active and occasionally dormant for a period of between 10 and 11 years.

The results of vaccine-therapy in this case seem little short of phenomenal, in three months from the date of the first injection the patient was a different being. The actual discomfort after injection varies somewhat, possibly, I think, with the strain of vaccine used, and subsequent injections certainly seen from these and other instances in which I have had experience of it, to be less painful than the first one. The occurrence of diarrhoea persisting for seven days after the second injection seems not unlikely to have been due to exposure to wet and cold during the temporary negative phase of opsonic power, which would follow on the injection given a few hours previously, according to the teaching of Sir A. E. Wright. I am induced to publish this note, as I feel convinced from the

experience of this case alone, that we have in vaccine-therapy with Foister's anti-dysenteric vaccine a remedy, which in suitable cases may be of the utmost value in combating an extraordinarily troublesome and obstinate complaint, responsible for no end of ill-health and possibly permanent invalidism amongst Anglo-Indians. I look forward to the day—I hope not now far distant—when the vaccine will be available for use by all practitioners, in India, at all events. I believe that it will take the same place in the practical therapeutics of dysentery, that anti-diphtheritic serum (though based on entirely different principles) now occupies in the treatment of diphtheria.

If this view is not utopian, and I do not think it so, it will be impossible to estimate the importance to the State in reducing invalidism from dysentery, and to the community at large in the prevention of suffering from this disease, as a direct result of Capt Foister's labours and researches.

A CASE OF MYXOMA OPERATED UPON AT THE WOMEN'S HOSPITAL, SURAT

By RUKHMABAI, L.R.C.P. & S., M.D. (BRUN).

Medical Officer in Charge, Women's Hospital, Surat

WITH THE KIND ASSISTANCE OF

B. H. BENNETT,

MAJOR, I.M.S.,

Civil Surgeon

ASHABIBI, a Mahomedan woman, aged 60, was admitted into the Hospital on the 5th July 1907, suffering from distention of the abdomen.

History—She has been a well-built woman, and has had perfect health all her life, married when quite young, had nine children in all. Menopause 15 years ago.

Six months ago patient began to have slight pain in the left iliac region, and the abdomen gradually increased till it grew to the present size of 36 inches round the waist at the level of the umbilicus. Patient began to lose her appetite and became thin and weak.

Condition on admission—Patient is able to walk about by herself even though thin and worn-out looking. Has no appetite, gets 2 or 3 loose motions a day. Slight prolapse of the rectum. Other organs in the body seem to be normal. Temp normal. Pulse 100, P.V., there is no bulging in the Douglas' pouch or laterally.

The abdomen is distended vertically from ensiform cartilage to pubes, and laterally from flank to flank. No variation of note from change of position. Note dull all over. Thrill elicited on tapping the abdomen simulating fluid. No

hard masses to be felt. Skin tense and shining over the abdomen.

Patient was willing to be operated upon, and so, after the usual preparation and antiseptic precautions, patient was anaesthetised on the 12th July 1907, and a vertical incision was made 3 inches long in the middle line between the umbilicus and pubes. After the peritoneum was cut through a bluish black looking mass protruded out of the wound which was taken for the sac of the cyst. On thrusting in a big cyst trocar, no fluid came out as expected, but when it was removed, thick jelly like stuff welled up.

The incision was enlarged and the sides of the abdomen pressed together and the stuff was scooped out by the hand. Each handful brought out a thick calf's foot jelly like substance sometimes looking bluish white and opaque and sometimes of water colour transparency, then, again, in parts the contents were as thick and inelastic as kneaded dough.

On account of its character, the substance could not be removed entirely. It was filling every nook and corner of the abdominal cavity up to the diaphragm and down to the pelvic fossae. In parts it seemed to grow for the inner surface of the parietal peritoneum, from which it extended in stalactite formation to cyst wall and to the intestine coils. The cyst wall was very thin and adherent to the peritoneum in front. Both had blended together and were so easily lacerated that separation from one another was impossible and portions of the sac had to be left behind.

When the abdominal cavity was emptied of its jelly like contents, it was found that the cyst had originally started from the right ovary, and as it went on increasing in size, the cyst wall got adherent to the peritoneum. However, the pedicle in the right broad ligament was carefully tied and a sac weighing over two pounds was removed. This part of the cyst wall was found to be full of a number of small and pendular cysts containing the same substance.

The whole quantity of the semi solid substance removed, filled a pail of $3\frac{1}{2}$ gallons.

The abdominal cavity was washed out with pints of warm distilled water to float up the jelly and thus to facilitate its removal. A glass drainage tube was put in at the lower end of the incision and the wound closed with interrupted sutures.

Patient collapsed at this stage and seemed on the point of going off, but rallied in a short time. The next three days patient was rather in a low condition. Temp varying between 100 and 102 pulse low and between 90 to 100. Retention of urine. On the fourth day the tube was removed and a couple of sutures put in to close the opening. Patient was kept on slop diet for a week, then on light solid food. There was no fever or any other complaint after the 4th day. The stitches were removed on the 10th day. The wound had healed by first intention.

Patient's recovery was uninterrupted. She left the hospital feeling quite well and strong on the 12th August, 1907, exactly a month after the operation.

A specimen of the jelly like stuff was forwarded for examination to the Path Laboratory, Bombay, and the tumour was found to be a myxoma.

The rarity of the occurrence of this variety of tumour has led us to record it.

The two theories of the origin of this growth are—(see page 752, Diseases of Women, Heimann)

(a)—That it springs from the original tumour, either from a bit left behind at the operation, or from some of its tissue that got into the peritoneum owing to tapping or rupture.

(b)—That it is a growth of the peritoneum.

Now, it cannot have been (a), i.e., a bit left behind of an original tumour operated on, or tapped, as neither of these procedures had taken place.

It could not be (b), i.e., a growth of the peritoneum from the fact that there was a distinct pedicle and sac originating from the broad ligament.

It may be that the jelly like substance was the original content of an ovarian tumour, or degenerated products of an ovarian tumour of ordinary cystic fluid. Against the latter is the short duration of the growth, viz., six months.

In our opinion the ovarian growth was myxomatous from the beginning, the cyst wall being adherent to the general peritoneum, the latter became secondarily involved by the myxomatous tissue which grew along it and between the coils of the intestines.

Recurrence—The period since the operation has been too short to pronounce an opinion as to the probability of recurrence. The woman is at present in good health and able to perform satisfactorily all her household duties.

Indian Medical Gazette.

MAY, 1909

AUTO INTOXICATION AND THE LACTIC ACID BACILLUS

THE term auto-intoxication is used to denote poisoning of the body by substances resulting from the processes incidental to its life. Until comparatively recently the theory of auto-intoxication, although admitted to be a fascinating method of accounting for certain derangements of function, could not be taken as absolutely proved, and many authorities completely denied its existence. One of the chief difficulties in accepting the auto-intoxication hypothesis was that the actual poisons could not be isolated and their effects demonstrated experimentally.

This is no longer the case, and not only have the presence of poisonous substances been demonstrated in the urine and stools, but also it has been found possible by means of injections with material from the intestines to reproduce in animals many of the phenomena observed in man as the result of auto-intoxication.

Dr. Herschell* in his little work gives a brief résumé of just so much of our present knowledge of lactic acid ferments as may be of assistance to the practitioner of medicine in the prescribing of them in a scientific manner. He sums up the causes of abnormal putrefaction in the intestines—in the greater number of cases these causes are due to the result of the action of the digestive fluids and of microbes upon proteids. It has been definitely proved that abnormal intestinal putrefaction is mainly effected through the agency of anaerobic bacteria. Recent research has demonstrated that whilst in the normal intestine the microbes met with are either aerobic or facultative anaerobes, and the number of strict anaerobes extremely small, the contrary condition is present in cases of abnormal intestinal putrefaction. In these there is a remarkable diminution in the aerobic bacteria which inhibit abnormal putrefaction, and a great increase in the anaerobic proteolytes which favour and produce it.

The most important of the poisonous substances produced in the intestines are ammonia and the aromatic bodies such as phenol, indol, scatol and their derivatives which have all been proved to be found in the intestines only as the result of microbial putrefaction. Dr. Herschell is firmly of the opinion that one of the chief causes for the prevalence of auto-intoxication is the large excess of animal food, over the real requirements of the body, habitually indulged in by the majority of mankind. This opinion he backs up with the evidence of experimental investigation demonstrating that the number of anaerobes is relatively large, and the colon bacilli (aerobes) small, in animals fed largely upon meat. In herbivora, the contrary condition of things is present, the dominant organism being aerobic. We think a more important point than the actual quantity of animal meat consumed is the actual amount of protein residue left from a diet to be disposed of by the bowel. If the amount be large it must be that a better opportunity is offered for abundant micro-organismal growth and intestinal putrefaction, and *vice versa*. It would be most interesting in connection with this view to determine the differences of the bacterial flora of the intestines of the European on his highly meat diet and the native of Bengal on practically a purely vegetable diet.

We know that the quantity of protein material passed under normal conditions by the meat-eating European is exceedingly small—being rarely more than from three to six per cent of the total protein intake of the food, whilst, on the other hand, the protein absorption of the Bengalee on his vegetarian diet rarely reaches the level of sixty-five per cent of his total protein intake. So that, the Bengali diet affords a huge amount of protein waste to be got rid of by the bowel, and whilst present in the intestines must provide far better opportunities for bacterial growth and putrefaction than are possible with the comparatively small quantity of protein waste offered by the European's diet.

The natural inference from these observations would be—unless it can be definitely proved that the large protein waste of a vegetable diet is incapable of acting as a medium for the production of the poisonous substances above enumerated whilst the protein waste from an animal diet is capable in a high degree of so acting—that the Bengali and those living largely

* Sound milk and pure cultures of Lactic Acid Bacilli in the treatment of disease, 1909

on a vegetarian diet are more liable to intestinal troubles and auto-intoxication than the European. Whether diet is the principal factor or only one of many factors we think there is no doubt that intestinal troubles are by far more frequent in the native of Bengal than in the European, and so far as this goes it would appear to be contrary to the views put forward by Dr Hirschell.

It having been established that poisonous substances leading to auto-intoxication are continually being produced in the gastro-intestinal tract, it is obvious that the human body must possess some means of protecting itself. With this object nature has provided on the one hand the triple line of defence, consisting of the intestinal mucosa, the liver and the antitoxic glands, and, on the other hand, the antagonism of the obligate inhabitants of the intestines. Another expedient nature employs to protect the organism from injury is the limitation of the amount of toxins actually produced in the intestines. This limitation is effected mainly through the agency of the normal obligate flora of the large intestine, consisting principally of the bacillus coli.

The evidence available suggests that the colon bacillus exerts an important function in combating the injurious saprophytes and is essential as a defence against bacterial foes. The researches of Comadi and Kujewit have thrown considerable light on the precise manner in which the bacillus coli inhibits the growth of other bacteria. These observers have proved that members of this group manufacture thermolabile and thermostabile substances which not only inhibit the growth of other organisms but also their own. This fact will account for the diminished number of bacillus coli in some cases of chronic constipation.

Curdled milk from time immemorial formed an important part of the diet of many peoples. The best known of the different ferments made use of is the Bulgarian Maya, with which is produced the article of food called yoghurt. This ferment was studied bacteriologically by Massol of Geneva who found that it contained among others a most energetic lactic acid producing bacillus—the so-called Bulgarian bacillus or bacillus of Massol.

To Metchnikoff is due the credit for the conception that the daily use of yoghurt or its equivalent could be utilised in the treatment of diseases and that by means of it, or preferably

by the use of a pure culture of the principal bacillus we might assist the colon bacillus in inhibiting abnormal putrefaction in the intestines.

Dr M Cohendy elaborated a practical working method for its use and ascertained the following important points—With a normal diet the bacillus appears in the stools in from three to four days after beginning to take it regularly with the food, that it takes about eight days to become properly acclimatised in the intestines and when this has been effected that it will continue to live and thrive for twelve days more without further administration, after that gradually disappearing. The presence of the lactic acid bacillus in the intestines causes an increase in the number of bacilli and cocci-bacilli that are Gram positive, and its regular administration tends to increase the bulk and weight of the daily faeces.

The effect of acclimating the lactic acid bacillus in the intestine is to inhibit the growth of the proteolytic microbes which are the most common cause of the abnormal putrefaction and consequent auto-intoxication. The main agent in effecting this inhibition of other bacteria would appear to be the production of lactic acid in accordance with the rule that an acid producing bacillus is able in a saccharine medium to arrest the growth of a putrefactive (alkaline) organism.

The evidence of the power the lactic acid bacillus is able to exert in inhibiting intestinal putrefaction is afforded by the great diminution in the daily excretion of the etheral sulphates, in the return to about normal proportions of the ratio of the urea to the total nitrogen, and of the ratio of ammonia to total urinary nitrogen—also by a great decrease as a rule in the capillary constant which in itself is an easily applied means of measuring the amount of poisonous bodies present that produce auto-intoxication.

Dr Hirschell goes fully into the important subjects of the selection of the best preparation for practical use, and arrives at the conclusion that carefully selected dry preparations are the best. He lays down certain rules to be observed in the selection of tablets and powders—the main point being the presence of the Bulgarian or Massol bacillus. The particular tablet and powder he most strongly recommends are those prepared by Dr Boucard who has much increased the resisting power and activity of the bacillus by successive cultivations on certain special

media. Milk curdled by means of the bacillus of Boucard is a most wholesome food and may be used as such quite apart from any question of acclimatising the bacterium in the intestine. Dr. Hirschell points out the importance of warning the patient to expect some disagreeable sensations and perhaps some apparent increase in the complaint during the first couple of weeks of treatment. Cohendy describes three stages in acclimatisation of the bacillus extending over a period of over a fortnight—the proof that acclimatisation has taken place is easily obtained by cultivation of a little of the stool in lactic litmus milk medium. This new method of treatment applied in suitable and carefully selected cases has given almost phenomenal results and adds another weapon to our means of defence in the struggle against microbial infection.

THE ETIOLOGY OF BERI-BERI

THE *Lancet* publishes a paper on the Etiology of Beri-Beri, by Fraser and Stanton of the Federated Malay States, of more than usual interest to the profession in India. Again the enquiry seems to incriminate the form of rice used in the diet, in fact almost every research on this important subject eventually leads us back again to "Rangoon Rice" or rice prepared for consumption in a similar way to the methods used in Burma.

Braddon believed that beri-beri was due to the consumption of stale white rice and that rice prepared in the ordinary Indian manner—by parboiling before husking—was absolutely safe. He concludes that the disease is due to a specific fungus which, like that of toxic eye and lohum, is probably a parasite affecting the surface of the seed.

The difference between "white rice" or, as usually called in India, Burma rice and Indian or country rice is that in the preparation of Burma rice no preliminary treatment of the paddy (unhusked rice) is required, it is milled by machinery and the husk together with the pericarp and surface layers of the seed is removed, whereas Indian or country rice is prepared by soaking the paddy for 24 to 48 hours in water, then transferring it to lightly covered cylinders and steamed for from five to ten minutes, subsequently it is removed to open paved courts and dried by exposure to the sun. It is thereafter stored as paddy or milled at once.

The investigations described by Fraser and Stanton were undertaken primarily to determine if, when other factors were excluded, people fed on white rice did develop beri-beri and if people under exactly similar circumstances, but fed on parboiled rice, did not develop the disease.

The conditions chosen were those presented by a gang of workmen road-making through virgin forest and practically isolated from all sources of contagion. Half the labourers were fed on white or Burma rice and half on parboiled or country rice.

Results and conclusions arrived at —

(1) Twenty cases of beri-beri occurred among 220 labourers on white rice. No case occurred among 273 people on parboiled rice, both parties being under exactly similar conditions. All cases were excluded from those showing signs of the disease that were in the least doubtful so that twenty is probably much too low an estimate.

(2) No case of beri-beri occurred in any coolie who had been on white rice for a less period than 87 days.

(3) No organism was found in either blood or urine of those suffering from beri-beri even after the most systematic and thorough examination.

(4) Patients in various stages of beri-beri were at times in contact with parties of men on parboiled rice, but no evidence could be obtained that the disease is a directly communicable one.

(5) Removal of patients suffering from beri-beri from one place to another did not influence the progress of the disease, and removal of entire parties from the place where the disease had occurred did not influence the progress of the outbreak so long as they continued on white or Burma rice—the place *per se* or considered as a nidus of infection has probably therefore no influence upon the development of beri-beri.

(6) In three instances in which definite outbreaks of beri-beri occurred among parties on white rice substitution of parboiled rice was followed by a cessation of the outbreaks.

(7) No evidence was obtained to show that any article of food other than rice is a possible source of the causative agent of the disease.

The general results lend support to Braddon's view that the disease beri-beri has, if not its origin in, at least an intimate relationship with, the consumption of white rice.

It would be important to know what was the condition of the rice which on consumption was followed by outbreaks of the disease. Was it fresh and free from all contamination by animal and vegetable parasites? Further experiments by treating the white rice with substances calculated to destroy such sources of contamination would also be necessary. We know of institutions in India where Burma rice has been in constant use for years and where measures for the proper preservation of the rice are in force with a result that not a single case of beri-beri has occurred among thousands of people. All the evidence would appear to point to the disease being of the nature of an intoxication and it would be a very important point to clear up whether rice capable of causing an outbreak of beri-beri did contain any active principle capable of isolation whose injection—into fowls for instance—would produce signs of the disease. The authors, we think, are to be congratulated on a very useful and careful piece of work and their observations go a long way to complete the chain of evidence which is being gradually forged, incriminating Burma rice in some way as the causative agent in the production of beri-beri.

PENSIONS—WIDOWS AND ORPHANS

WITH regard to our Editorial on this subject in the February number, an important question has been raised to which we are happy to be able to give an authoritative answer. The point at issue is—are the widows of officers, retired after the 1st December 1884, ineligible for pensions granted by the Royal Warrant. The doubt arises owing to the wording of one of the restrictions which is as follows—

Article 602, Royal Warrant, 1907—An ordinary pension may be granted, provided—

(5) That an officer did not retire with a gratuity, *or having joined Our Army from the late Indian forces did not retire after the 1st December 1884 under the regulations for Our Indian forces*

The following extracts will make clear the meaning of the clause in italics

Extract from a letter (No 91, dated, 7th July 1892) from the Secretary of State for India to the Viceroy

"The pensions mentioned in this article are granted under the Royal Warrant in force at the time being, and the Warrant shows clearly

that retirement of an officer from the service does not ordinarily affect his widow's claims to pension"

Extract from a letter (No 192, dated 12th September 1893) from the Government of India to the Secretary of State for India—

"Whether we are right in thinking that the portion of clause (5) 'or retired after 1st December 1884 under the regulations for Our Indian forces' does not apply to officers of the British service who have joined, or may join, the Indian Staff Corps, and retire on pension under the rules applicable to that corps"

The reply to this in the Secretary of State's letter (No 132, dated 16th November 1893) is "The words (above quoted) do not apply to officers of the British service who have joined, or may join the Indian Staff Corps. They apply to officers who joined the British service from the Local Indian Army, whose widows are allowed to choose between pension under Royal Warrant and pension under the regulations of the Military Fund, late Lord Clive's"

It is evident from these extracts that the fact that an officer died after his retirement from the service does not vitiate the privileges granted by the Royal Warrant to his family. The clause in doubt refers to officers who joined the British Service from the Local Indian Army such as General list, Infantry, General list, Cavalry, etc

The documents that should accompany an application for the Royal Warrant Pension are—

- (1) Declaration of widowhood
- (2) Statement of means of support (Para 770, A R I, Vol I)

While on the subjects of pensions we might refer to another doubtful point that has been pointed out to us

The eligibility of officers for extra pensions of £100 per annum is governed by the following note to paragraph 734 of India Army Regulations—

"Officers who may be appointed to the service after the examination in August 1889 are ineligible for these pensions"

According to existing orders the interpretation of this paragraph is that officers of the batch who qualified at the 1889 August examination will be the last to be eligible for the extra pension, so that officers of the August 1889 batch, although they were admitted to Netley on 30th September 1889 and their commission bear that date are entitled to the

advantages of these extra pensions This would appear to be the ruling at present in force and it necessarily implies that the passing of the examination is synonymous with the entrance on appointment to the service

Current Topics.

ANTITYPHOID INOCULATION

LIEUTENANT-COLONEL W B LEISHMAN, R A M C (*Journal of the Royal Army Medical Corps*) has been permitted by the Director-General to publish a statistical table giving the results of inoculation against typhoid from the more recent figures Since the beginning of 1905 every regiment leaving England for foreign service has had a junior medical officer attached whose duty is to carry out antityphoid inoculations, to verify the diagnosis of enteric by modern scientific methods and to collect statistical information as to the protective effects of the vaccine Comment may be dispensed with in view of the eloquence inherent in the figures themselves

With regard to the cases that occurred in the 2nd Royal Fusiliers, all had been inoculated with the old vaccine, no case occurred among the men subsequently inoculated with the new vaccine

With regard to the cases of enteric occurring among men inoculated with the new vaccine, there are only four cases among the twenty one who developed the disease in which two doses had been received—all recovered Three of the four were noted as extremely mild, and the diagnosis of enteric in one was doubtful

Statistical table, showing the results of Antityphoid Inoculation in sixteen units of the Army up to June 1908

Unit	Station	Total Strength	INOCULATED			NON INOCULATED		
			Number	Cases	Deaths	Number	Cases	Deaths
2nd Royal Fusiliers	Trimulgherry	1,013	198	10	1	815	59	9
17th Lancers	Meerut	616	122	3	0	294	71	12
Brigade, R A	Pindi	370	60	0	0	310	7	0
14th Hussars	Bangalore	647	386	2	0	261	4	1
2nd Dorsets	Wellington	1,107	199	1	0	908	6	0
3rd Coldstream Guards	Cairo	705	369	1	0	136	13	1
2nd Leicesters	Belgaum	963	346	3	1	617	17	1
1st Connaught Rangers	Dagshi	483	300	0	0	183	2	1
3rd Worcesters	Wynberg	900	220	0	0	680	3	0
1st Dragoon Guards	Umballa	592	450	0	0	142	0	0
1st Yorks	Cairo	893	470	0	0	423	0	0
1st Suffolks	Malta	900	400	0	0	500	0	0
3rd Royal Rifles	Ciete	879	190	0	0	689	0	0
2nd Bedfords	Gibraltar	700	320	0	0	380	3	1
Brigade, R A	Pretoria	375	247	1	0	128	2	0
1st Lancashire Fusiliers	Chakrata	940	796	0	0	144	0	0
	Totals	12,083	5,473	21	2	6,610	187	26

Case incidence per 1,000

(1) Among the whole of 16 units above table

(2) Among "exposed" units i.e., in which a case of enteric had occurred

(3) "Exposed" units, less Royal Fusiliers (the unit inoculated with the "old vaccine")

Inoculated	Non Inoculated
38	283
66	395
37	328

RONTGEN RAYS

Two addresses delivered at the Berlin Medical Society dealing with the subject of treatment of dermatoses by X-rays were very stirring The first was that of Professor Blaschko on the Rontgen treatment of skin diseases, in which he recommended the employment of soft tubes for this class of work, the use of hard tubes was considered by him to be a direct technical error According to him, hard tubes produced rays of great penetrating power which go through the soft parts of the body with comparative ease The more energy driven through the tissues the less is absorbed by them Superficial absorption—and this is what is concerned in the treatment of skin diseases—is extraordinarily small with the use of hard tubes, while the rays emanating from soft tubes are absorbed by the uppermost layers of the skin to a far greater degree In order to produce the same effect with hard tubes the parts must be rayed more powerfully and for a longer time By this means not only more intense but more prolonged deep effects are produced, these deep effects are to be avoided in view of our present knowledge that bone marrow, blood and sexual glands—indeed, all cellular organs—are damaged by deeply penetrating Rontgen-rays In extensive skin affections, therefore, the use of hard tubes amounts to a positive danger

In the Rontgen treatment of skin disease the best effects are now obtained by small doses of the rays, this is not only because small doses are more devoid of risk, but also because in the majority of cases they are more active, at least in those affections of the skin where, unlike the treatment of tumours, the production

of extensive tissue disturbance is not desired, or where, as in favus, microsporon, trichophyton, or sycosis, destruction of the hairy elements is not the purpose in view. In all these latter conditions, of course, one is obliged to approach pretty closely to the margin of an inflammatory dose, and may at times even overstep it, in other skin affections, however, one-sixth, one-eighth, or even a smaller fraction of this dose suffices. As a general rule one manages quite well with two or three applications of the rays at intervals of a week, at times in order to avoid cumulative effect, the intervals must be prolonged.

A Röntgen effect capable of wide therapeutic application is the epilatory action of the rays. This is indicated in all diseases of hair, such as microsporon, favus, trichophyta profunda (so-called parasitic sycosis), and ordinary sycosis, where cure is impossible without complete epilation. For hypertrichosis and hair nævus, for which the rays were originally used, they are now hardly ever employed. Epilation is either temporary or permanent, and in the latter case it often gives rise to scar formation, atrophy and pigmentation more formidable than the original complaint. (*Berlin letter, Folia Therapeutica*)

RADIUM

THE interest now being aroused in radium renders it opportune to summarize what is known of this subject in order to appraise of its possible therapeutic value. Dr. Wilfred Harris, in his recent work on electrical treatment ("Modern Methods of Treatment" Series, Cassell and Co.), states that the effects of radium appear to be due merely to the X-rays given off. It will be remembered that Becquerel conducted his experiments on uranium after Röntgen had demonstrated the physical properties of the rays known by his name. Becquerel showed that uranium and its salts emitted rays which could penetrate wood or paper, and act on photographic plates. Further investigations indicated that these rays were more complicated than ordinary X-rays, in fact, they contained X-rays, but in addition two other forms of rays. The separation of these rays of Becquerel into three divisions is attested by their different behaviour to magnetism. One division or group is not acted upon at all by magnetism, thus corresponding to X-rays, one group is attracted by the north pole of the magnet, and the other by the south pole. These rays are now known as alpha, beta and gamma. The first are positively electrified particles about twice the size of hydrogen atoms, the second consist of extremely minute particles charged with negative electricity, and the third are identical with X-rays.

Uranium, which was the source of this discovery, is always present in that rare mineral,

pitchblende. This latter substance was chosen by Madam Curie and her husband for their experiments with these rays. These experiments resulted in the extraction from the barium of pitchblende of a salt which was about one million times more active than uranium. This substance was termed radium. It has not been isolated as an element, but its salts emit rays similar to those from uranium, except that they are much more powerful. Their powers of penetration are much greater than those of X-rays, being able to pass through more than 12 inches of solid iron.

Radium is constantly discharging intra-atomic energy, its atoms are in continuous state of disruption while emitting the variously electrified rays. The theory has been formulated that all the so-called elements are composed of atoms, each of which is built up of different numbers of electrons, or negatively electrified particles, surrounded by a spherical shell of positive electricity.

Radium is able to endow surrounding objects with the virtue of temporary radio-activity, because radium emanations are deposited on them. It should be said that the alpha rays emitted are actually the same as those given off from glowing metals, as both consist of positively electrified particles. They also appear to be identical with helium—an inert gas, first discovered by Lockyer in the solar spectrum and since isolated from our atmosphere. Thus radium exemplifies in a degree the process of transmutation, in partly converting itself into helium.

The therapeutic action of radium may be estimated from the remarks made by Mr. Deane Butcher at the Electricity Section of the British Medical Association. He cured himself of an obstinate indurated patch of eczema, which had resisted all treatment for more than a year, by two exposures to radium, of the duration of ten minutes each. He states that radium has a unique power of relieving those terrible cases of itching which sometimes reduce patients to the most pitiable conditions. It will often succeed permanently where the X-rays only exercise temporary benefit. It is a sovereign remedy for removing all kinds of thickening and infiltration about the face, eyes and nose, whether due to lupus, epithelioma, or syphilis. The treatment of nævus and other birth marks has been successful enough to elicit the delight of mothers. Nævi react very slowly, and the treatment is therefore highly expensive.

Mr. Butcher suggests that radium should prove the ideal treatment for primary syphilis. The lesion, being of limited size, can easily be covered by the radium capsule. A suspicious abrasion, if treated by radium, may result in the destruction of spirochaetes lurking therein.

Radium acts upon the nerve elements of the tissue exposed, and upon the cells of any new growth contained in it. The neuilemma of the

nerve fibrils is decomposed, and this accounts for the anesthesia which follows exposure to radium. The cells of embryonic or rapidly growing tissue are inhibited in their multiplication, and the absorption of irradiated tissue is facilitated (*Ext Folia Therapeutica*)

THE EFFECTS OF INTENSE SUNLIGHT

DR E O Sisson publishes a most important paper on the effects of intense sunlight on the eye (*Ophthalmology*, January 1909). To those residing in India and subject to the effects of intense sunlight, his conclusions are of interest.

1 The function of pigment is to absorb all rays of light not intended to co-operate in producing vision.

2 The amount of pigment in the human eye corresponds with the general colouring or complexion, so that the eyes of the brunette type are better protected from the harmful effects of intense light.

3 The portion of the retina most concerned in vision—the macula—is the part best protected by pigment deposits, and this is true even for the albino, where other portions of the fundus are entirely devoid of pigment.

4 It is possible that one of the functions of the rhodopsin is to protect the delicate nerve tissue from the harmful effects of light.

5 Pigment does exclude the dangerous actinic rays of light.

6. Actinic rays are destructive to living protoplasm.

7 There is ample proof that light does injure the eye and it is possible that some of the eye diseases whose etiology is obscure may find their explanation in that way.

8 That in view of the fact that glass stops the ultra-violet light, while quartz allows it to pass through, we have in the wearing of glasses a protection from the harmful rays.

SCIENTIFIC METHODS AND TROPICAL DISEASES

The *Journal of the American Medical Association* publishes a summary by Dr Strong, chief of the Biological Laboratory, Manila, on scientific methods of combating tropical diseases in the Philippines. Dr Strong makes special reference to tropical dysentery, plague, cholera, malaria, dengue and small-pox.

At the time of the American occupation tropical dysentery was the most serious and common disease which attacked both Americans and Europeans in Manila and the vicinity. Some idea of the importance of this malady may be derived from a consideration of the fact that during the year 1900 there were four times as many deaths amongst American soldiers as from any other single disease. It was therefore a matter of urgent importance to investigate

the cause and nature of the disease as met with and devise means, if possible, for its satisfactory control and prevention.

An extensive research revealed the fact that the so-called dysentery of the Philippine Islands really included three distinct diseases and that the most satisfactory forms of treatment were widely different for these various affections. The forms differentiated were—the amoebic type which appears to be identical with that usually known in certain portions of Africa under the term of "tropical dysentery," the bacillary type apparently the same as the intestinal form of intestinal flux occurring in Japan, the catarrhal form corresponding to the catarrhal dysentery encountered more or less throughout the world.

It was soon demonstrated that these three forms could easily be distinguished from one another by laboratory methods, the amoebic form by the presence of the amoeba in the dejecta, and the bacillary type by a specific agglutination reaction.

Having placed the differentiation of the varieties of the disease on an intelligent basis the next step was the working out of sound lines of treatment. It was found that while the most effective treatment of the amoebic form consisted in attacking the parasite by local applications (enemata) the same therapy in the bacillary dysentery was not only not efficacious but very harmful, and that the best results in this variety of the disease were obtained by a general method of treatment and by the inoculation of antidysenteric serum. In the catarrhal type neither local treatment nor serum inoculations were of much use, the disease usually yielding to ordinary simple methods. The investigations further demonstrated that the amoebic and bacillary dysenteries were usually acquired by drinking infected water—the city water-supply being practically always infected.

So far it has been found quite impossible to destroy the amoebae in the water-supply by the introduction into the city reservoirs of chemical substances, such as copper sulphate, in safe amounts for drinking purposes, or to remove them by filtering. As a result of the investigations both the mortality and amount of dysentery among Americans and Europeans has become rapidly reduced. At the present time bacillary dysentery, which formerly was epidemic, and which frequently carried off its victims in from three to four days, is very rare in Manila and amoebic dysentery is becoming less and less frequent each year.

A decided advance in our knowledge of the amoeba has been brought about by the demonstration in Manila of the ease with which they can be cultivated on solid media, and of the fact that they can be grown in the test-tube under certain conditions with almost the same facility as bacteria.

Great efforts were made by the American authorities to stamp out plague which made its appearance in 1900. All the ordinary methods of sanitation, rat and flea destruction and quarantine were rigidly carried out. By far the most effective measure in combating the disease consisted in the immunization of the people living in the badly affected districts by means of inoculation with the prophylactic against plague.

Particular attention was paid to the investigation of devising improved methods of protective inoculation and a method of vaccination has been obtained which will probably reduce the mortality among the vaccinated to under 20 per cent. Dr. Strong expresses the hope that this method of vaccination will be employed in India where plague has raged for the past ten years in spite of all hygienic measures taken and when during that time the mortality has amounted to over 5,000,000.

With regard to cholera Dr. Strong states that as a general measure in the prevention of the disease, the subject of immunization in human beings against cholera was studied in the Manila Government laboratories and that after extensive investigations a method of protective inoculation against cholera was devised which is perfectly harmless and which is not objected to by the natives.

Statistics already show that the number of cases of cholera which have developed in the inoculated is only one-sixth of that which has occurred among the uninoculated.

It would be of interest to know if the protective measures discovered by the Manila research workers against plague and cholera are superior to those in use in India for many years back, and it would be indeed a gain to India to find any measure of such a kind to which the native would make no objections. The question at issue would appear to be that of their relative safety and efficiency.

Dr. Strong endorses the work of Craig and Ashburn on dengue, that the disease is probably transmitted by means of the bite of the mosquito *Culex fatigans*, that the organism causing dengue is probably ultra-microscopic, and that it is present in the circulating blood of patients suffering with the disease.

In relation to small-pox Dr. Strong states that a cessation of deaths from this disease has followed in the provinces in which the people have been thoroughly vaccinated. In provinces where there were formerly 6,000 cases annually not a single death has been reported from small-pox for the past year. No case of loss of life on account of vaccination has occurred, nor have any limbs been sacrificed, nor has there been a case of a very severe infection resulting from vaccination reported. The disease has been kept thoroughly under control by vaccination alone.

TESTING THE PANCREATIC FUNCTION BY THE AMOUNT OF AMYLOPSIN IN THE STOOLS

THERE is an interesting paper on this subject in the *Semaine Médicale, Paris*. A method is described by which it is possible to measure the amount of amylase in the faeces and thus to obtain insight into the condition of the function of the pancreas. It had previously been discovered by Leo that amylopsin is more abundant in diarrhoeic than normal stools and the investigation now completed confirms this. Research on 150 individuals resulted in the working out of a fairly simple laboratory technique to obtain the maximum of the pancreatic amylase in the stools. It was found that trypsin does not destroy ferments in contact with it if they are mixed with albumin, consequently the first step is the ingestion of a pint and a half of milk followed in an hour with a good purgative, and, an hour after the purgative, 250 cc of an alkaline mineral water. To prevent destruction of the amylopsin by micro-organisms and trypsin, a piece of ice is placed in the vessel for the dejecta. The solid stool is removed and fluid diluted to 20 litres. 1 cc of the diluted faeces is mixed with 50 cc of starch paste acidified with hydrochloric acid to the optimum reaction and kept in an incubator for half an hour. From the amount of sugar thus formed the amount of amylopsin in the total faeces can be calculated.

The proportion of amylopsin is larger the more rapidly the purgative acts. It is considered that when the technique has been further perfected it will afford most useful information regarding the functional activity of the pancreas. One point of interest brought out in this research is that in two cases of cancer examined there was almost complete absence of amylopsin.

REPORT OF THE WELLCOME RESEARCH LABORATORIES, KHARTOUM

WE would call the attention of the profession in India, and particularly that of those engaged in the study of tropical disease, to the exceedingly interesting and instructive "Third Report of the Wellcome Research Laboratories at the Gordon Memorial College, Khartoum," and also a Supplement to the Report giving a very exhaustive account of Recent Advances in Tropical Medicine, Hygiene and Tropical Veterinary Science. A review of these two handsome volumes will be found in the usual columns. Owing to the demand for these reports the Sudan Department of Education have authorised the publishing firm, Messrs. Ballière, Tindall and Cox, to undertake, in future, the publication and issue. We offer our congratulations to the Director and publishers on the excellent combination, and we must express our very great admiration for the beautiful plates and drawing with which the report is illustrated.

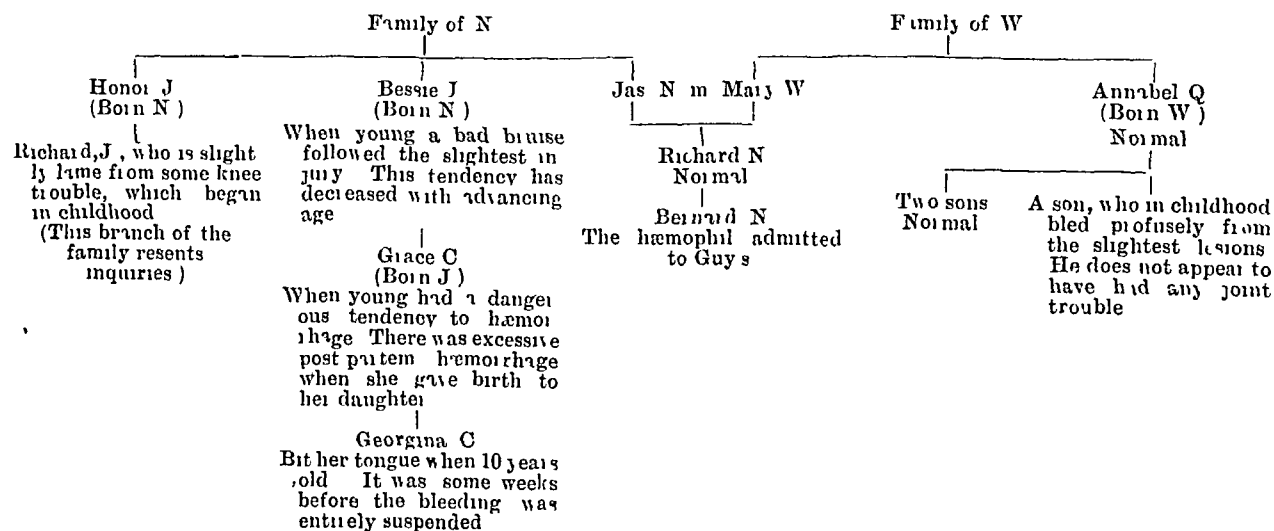
The functions of the Wellcome Research Laboratories are —

- (a) To promote technical education
- (b) To promote the study, bacteriologically and physiologically, of tropical disorders, especially the infective diseases of both man and beast peculiar to the Sudan, and to render assistance to the officers of health, and to the clinics of the civil and military hospitals
- (c) To aid experimental investigations in poisoning cases by the detection and experimental determination of toxic agents, particularly the obscure potent substances employed by the natives
- (d) To carry out such chemical and bacteriological tests in connection with water, food stuffs and health, and sanitary matters as may be found desirable
- (e) To promote the study of disorders and pests which attack food and textile-producing and other economic plant life in the Sudan
- (f) To undertake the testing and assaying of agricultural, mineral and other substances of practical interest in the industrial development of the Sudan

A CASE OF HÆMOPHILIA WITH ANOMALOUS FAMILY HISTORY

BERNARD N had suffered on several occasions from extensive and persistent bleeding, and almost incredible bruising followed the slightest injury. *Guy's Hospital Gazette* publishes the following points of interest regarding the case —

The family history showed several near relations to be hæmophilic



Osler says, speaking of hæmophilia "In a majority of cases the disposition is hereditary. Atavism through the female alone is almost the rule, and the daughters of a bleeder, though healthy and free from any tendency, are almost certain to transmit the disposition to the male offspring"

In the table given below there are two female "bleeders" Reference to standard text-books shows that the condition is uncommon in females. Again, the boy Bernard inherits his defect from his father's side. Thus the genealogy in this case differs considerably from the classical descriptions

FIBROLYSIN AND DEAFNESS

THE following note on the treatment of certain types of deafness by Fibrolysin injections published in *Guy's Hospital Gazette* by W W Mollison, M.C., F.R.C.S., is of sufficient importance to warrant its reproduction —

"Cases of deafness due essentially to a deposit of fibrous tissue in the middle ear are to be numbered among the most discouraging that come under the care of the aural surgeon. Such are cases suffering from otosclerosis, chronic catarrh, adhesions after an otitis media, and syphilitic periostitis of the temporal bone—the last often hard to distinguish from a senile deafness.

The treatment of these cases, taken broadly, follows two lines. The first is an attempt to improve the general condition of the patient, prescribing change of surroundings, with complete mental relaxation, and tonics strychnine, arsenic and cod liver oil, the second, to discover and treat any condition which may be a cause of the deafness—nasopharyngeal or nasal obstruction, pharyngitis or enlarged tonsils, and to periodically and regularly inflate the Eustachian tubes by politizerisation. It may be noted in passing, with regard to politizerisation or the use of the Eustachian catheter, that the more the improvement in hearing by this means at the first sitting, the better the prognosis, and *vice versa*.

Various forms of local treatment have been used with a view to loosening the adhesions in the middle ear, such as injections into the Eustachian tube and vibratory massage, in those cases where the latter has been used in the Out-patient Department at Guy's it has failed to produce improvement. In spite of these various means

of treatment, the results obtained are highly unsatisfactory, the disease progresses slowly, and the patients lose hope of ever regaining their hearing

In these cases under consideration, excess of fibrous tissue is the primary cause of the deafness, this fibrous tissue first knits together the auditory ossicles and causes a sclerosis of the membrana tympani, latter passes to the oval window, and finally to the internal

ear, leading to involvement of the endings of the auditory nerve. The removal of the fibrous tissue should be the aim of treatment.

Fibrolysin is claimed to remove pathological fibrous tissue, and in some condition it has undoubtedly met with success, it therefore seemed possible that this drug should be of use in a disease of the ear which is to a great extent inaccessible to surgical manipulations.

The drug is given by injection, and the injections must be continued for some considerable time before an effect is produced, so that the number of patients who can afford the time and are willing to undergo the treatment is small.

Method of treatment.—The fibrolysin used was that prepared by E. Merck, put up in ampullæ each containing 23 cc. It was injected into the gluteal region and in order to diminish the discomfort of injection the skin was first frozen with a spray of ethyl chloride.

Five cases have been treated, all were females. Of these, two distinctly benefited, one, a girl of fifteen, improved for a while, but ceased attending because the injections gave some pain, one was apparently unaffected, though the patient said she heard better, and the fifth case, though quite recent, seems to be improving slightly and is still under treatment.

To judge of the effect on the patients they were examined in a quiet room, and their power of hearing a watch noted, the same watch being used at each examination. At the same time the patient's opinion and that of her friends as to her ability to hear the voice was noted, since this is the standard by which patients measure their hearing, considerable importance was attached to it."

KALA AZAR & LEISHMAN DONOVAN BODY

CAPTAIN PATTON in his first report gave a short account of the researches of different investigators on the extracorporeal stage of the Leishman-Donovan body, and examined the hypotheses advanced to explain the method of infection of the human body by this parasite, following up with a certain measure of success Major Rogers' idea that the intermediate host was probably to be found in one of the blood-sucking insects and particularly the bed-bug.

Since writing the first report Captain Patton has been able to study in the bed-bug all the intermediate changes or stages in the development of the parasite up to the development of the long free swimming flagellates, and, in this second volume,* he describes those changes and also gives some further observations on the peripheral blood of cases of Kala-Azar. The opportunity presented itself of examining three more cases in whose peripheral blood parasites occurred in large numbers, with blood taken from the fingers of these cases feeding experiments were carried out and the development of the parasite in the bed-bug studied, and the following conclusions arrived at—

1 Kala azar is usually a chronic disease lasting many months and often years, but it occasionally runs an acute course terminating fatally in a few months.

In acute cases and in chronic cases terminating with ulceration of the large intestine, the parasites are found a few days before death in large numbers in the peripheral blood in the leucocytes and endothelial cells.

2 In the female as well as the male bed-bug the parasites have by the third day passed through all the intermediate stages of development up to the formation of the mature flagellates. Rapid multiplication by rosette formation is a characteristic feature of the development of the parasite in the bed-bug.

3 At present there is no evidence to show that the development in the bug depends on variations in the temperature.

4 The tendency the disease has of lingering in a house is probably explained by the fact that the parasite may remain in the midgut of the bug for several days before beginning to develop, and, as the nymphs which take from seven to ten weeks to arrive at maturity, may infest the parasite shortly after hatching, and usually feed once only between each moult, the infection may remain for a considerable time in a house.

The report gives two full-page plates illustrating the parasite in all the stages of development described.

We do not come across any markedly different forms from those first described by Rogers when he succeeded in culturing the parasite from the spleen of patients with Kala-azar, so that, so far as the developmental appearances go, we are pretty much where Rogers left it four years ago. If it could be proved that the bed-bug consistently showed these developmental forms after feeding experiments and that it was capable of transmitting one of them to man while biting a long step in the solution of the problem of the etiology of Kala-azar would have been taken.

In connection with Patton's work on the development of the Kala-azar parasite in the bed-bug, we might refer to some important research on the Leishman-Donovan body by Nicolle in the *Arch Inst Pasteur de Tunis*. Experimental production of the disease in the monkey (*macacus sinicus*). The liver and peritoneal cavity of the animal were inoculated with an emulsion of the spleen of a patient suffering from Kala-azar. Death three months later, when the parasites were found in smears from liver and bone-marrow. Another monkey was inoculated in the same way with a part of the bone-marrow and spleen of an experimentally infected dog. The animal suffered from wasting and fever and was killed for examination after ninety-nine days.

Post-mortem examination disclosed hypertrophy of the spleen and an abnormally deep red colour of bone-marrow. Smears taken from the various organs showed the parasites to be very numerous in the liver, somewhat less in the spleen, and still less so in the bone-marrow.

* The Development of the Leishman Donovan Parasite in *Cimex Rotundus*. Appendix to the Annual Report of Bacteriological Section of the King Institute, Gundy, 1907. By Captain W. S. Patton, M.B., I.M.S., Vol II.

imparting instruction, we think no teaching institution should be without a large number of copies of this atlas of obstetrics. Its assistance should also be of the greatest value in the teaching and training of nurses and midwives. We congratulate the joint authors on the very valuable and fascinating methods they have adopted, and the publishers for the beauty and finish of the pictures they have placed within the reach of those desirous of instruction.

The "Nauheim" Treatment of Diseases of the Heart and Circulation—By LESLIE THORNE THORNF, M.D., B.Sc., etc., Consulting Physician to St John's House of Rest, Mentone. Third Edition, pp 82. Illustrated by photographs and charts. Messrs Baillière, Tindall and Cox, London, 1909.

THE third edition of this useful little work on the 'Nauheim' treatment gives a little more detail in the chapters on the preparation of the baths and the administration of the exercises. The classification of 'cases suitable for treatment,' has been somewhat altered, the records of 'cases treated' has been brought up to date and some further cases added.

We can recommend this book to all practising physicians who have any desire to make use of the 'Nauheim' treatment in their heart cases. By following the directions given by the author, medical men who may have had no experience or practical knowledge of it may avail themselves of this valuable therapeutic agent in the treatment of chronic affections of the circulation. The methods consist essentially in the administration of a graduated course of baths prepared artificially, so as to resemble in all active ingredients the natural baths of Nauheim. Exercises invented and perfected by the late Dr Augustus Schott and Professor Theodore Schott form an important part of the treatment, these exercises are profusely illustrated by photographs, so that the movements are easily followed.

Guide to Surgical Anatomy and Practical Surgery—By V. S. SANZGIRI, L.R.C.S.E., L.F.S.G., Honorary Asst Surgn, Sir Jamssetjee Jeejeehoy Hospital (Bom.) Bombay. The Lady Northcote Hospital, R. N. Sailor Press. Price Rs 2.

THIS little book is in its way ambitious as it deals with the subjects of Surgical Anatomy and Practical Surgery within the compass of 188 pages. It contains much that will be useful to the student who wishes to cram up these subjects just before an examination. The surface Anatomy and other Anatomical points of importance are first briefly alluded to, and then the Surgery of the part, principally from an operative point of view, is dealt with. An Appendix, dealing with Antisepsis, etc., concludes the book. The "errata" are very numerous, particularly as regards spelling—and, one does not like to see such expressions as "privates" used in what claims to be a Surgical Guide.

Squire's Companion to the British Pharmacopœia—Eighteenth Edition, 1908. Publishers J & A Churchill, London.

THE eighteenth edition of this well-known and valued standard work reaches 1,417 pages. Seeing that the seventeenth edition was published as long ago as 1899, it is easy to understand that the present one has had to be practically rewritten from cover to cover. While these facts speak for themselves, they will be better brought out, for those who do not know the book, by a concrete example picked at random, and we happen to have hit upon cocaine for the purpose. Its consideration fills eighteen pages. The base itself is first described with its solubility in eight media, its tests and its official and non-official preparations. Cocaine hydrochloride is next dealt with under the headings of solubility, medicinal properties (occupying $1\frac{1}{2}$ pages), dose, antidotes, foreign pharmacopœias in which it is official, tests (in over four pages), preparations official and non-official, then follow the consideration of eight other salts of cocaine, and of eucaine A and B, with nearly two pages of extracts of from medical journals on practical points in favour of, or against their use, and lastly, extracts of opinions published on the value or otherwise of orthoform, tropacocaine, holocaine, acoine, neivanin, nervocidine, alypin, novacaine and stovaine, together with their compositions, solubilities, and the strength of the solutions in which it is recommended that they should be used. The standardisation of preparations receives considerable attention, for in addition to a comparative table showing the strengths of these standardised preparations in the British, United States, French, and German Pharmacopœias, the text contains frequent references to them. A chapter on therapeutic agents of microbial origin is a model of conciseness. An equally useful and concise chapter follows on the spas of Europe (including Britain), and the book, which ought to be in at least every sadder dispensary, ends with a classification of remedies from the clinical standpoint. It is at least as useful to the medical man as to the dispenser.

A Manual of Natural Therapy—By THOMAS D. LUKE, M.D., F.R.C.S. (Edin.) Pp 289. 30 Plates. 125 Illustrations. Published by John Wright and Sons, Bristol, and Simkin, Marshall, Hamilton, Kent & Co., London.

THE contents of this book consist of the uses of baths, heat, light, massage, electricity, and diet in the treatment of disease, and a final section on the modern "cure." The attitude of the writer is not one of over-enthusiasm in pushing his own speciality. On the contrary the value of the book is enhanced by a fairness and discrimination in pointing out where "natural" methods fail or are even injurious. His standpoint cannot be better summed up than by quoting his own words dealing with the

use of drugs in the modern "cure" establishments. He says "The manifest object in coming to a 'cure' establishment is to try what can be done by *natural* methods. It is well, therefore, to start fair and avoid confusion of issues. There must arise from time to time special circumstances, under which the prescription of some drug is desirable or even essential, and no blind adherence to any special form of treatment can be expected to lead to the best results. An open mind and eclecticism in method are always best, but patients who arrive with bundles of prescriptions and bottles of physic are at the very start best advised to put away the former and throw away the latter, commencing their treatment *de novo*."

The very profuse and excellent illustrations, many of which are original, add greatly to the value of the book, which covers concisely an immense amount of ground, and, in a comparatively small space, gives large amount of information on the subjects with which it deals.

Tropical Medicine, Hygiene and Parasitology—A Handbook for Practitioners and Students. By GILBERT E. BROOKE, M.A. (Cantab.), L.R.C.P. (Edin.), D.P.H., Port Health Officer, Singapore. With numerous illustrations, including twenty-six plates. Pp. 498. Publishers: Messrs. Chas. Griffin & Co., Ltd., Strand. Price 12s 6d net 1909.

If an apology were needed for the addition of another volume to the already extensive literature of tropical medicine, it is furnished by the completeness of the volume before us and by the handy and portable form in which it is presented.

The author has spared neither time nor trouble in collecting, sorting out and piecing together a vast amount of data from many sources, with a result that we have condensed into a comparatively small compass a most complete work on the subject of tropical medicine with its allied branches.

A most useful feature is the alphabetical arrangement of the sections on tropical diseases, which obviates continual reference to the index.

The section dealing with the hygiene of the tropics gives many most useful hints to the reader, and should prove of great service to young medical officers on their first arrival in India. The author's ideas on clothing suitable for the tropics are not in accordance with those of the majority of the profession, but they are the outcome of practical experience and are the honest convictions of one who has put his ideas to the test.

We can strongly recommend this book to the practitioner as a handy, portable little volume, replete with all kinds of information and with practical hints and observations of

value. It is exceedingly well produced by the publishers, the illustrations and plates being excellently finished.

Review of some of the recent advances in Tropical Medicine, Hygiene and Tropical Veterinary Science—Supplement to the Third Report of the Wellcome Research Laboratories at Gordon Memorial College, Khartoum. By ANDREW BALFOUR, M.D., B.Sc., F.R.C.P. (Lond.), D.P.H. (Camb.), Director, R. G. ARCHIBALD, M.B., R.A.M.C. Published for the Sudan Government by Messrs. Baillière, Tindall & Cox, London, 1908.

THIS most excellent and exhaustive review of tropical medicine with allied subjects was undertaken with a view to present in a single volume new matter of importance to medical and veterinary officers stationed in the Sudan, especially those in out-stations, to assist them in keeping themselves in touch with current literature. It presents in a small compass the most important discoveries on the subject indicated and serves as a guide to new books and papers. A special feature is the exceedingly full references given, so that any one wishing to go more fully into any special subject may be able to obtain the original book or paper. Every care has been taken to render these references as correct as possible. While intended mainly for medical and veterinary officers in the Sudan, the hope is expressed that workers in other tropical countries may find this review of service. Of this there is no question nor doubt, it is just what every worker on special lines should have in his library. Of course, the range of subjects dealt with is, of necessity, limited, but it includes practically everything of importance published up to 1908.

This review runs to 250 full-sized pages, the references being given in small type at the bottom of the page, also the tropical diseases are dealt with alphabetically. Both of these methods save a great deal of time in a reference book, obviating continually turning to the index for diseases, or the end of the chapter for the original papers.

There is a very good index besides to assist in finding the subject wanted. Altogether we consider this a most valuable production and exactly the kind of thing much needed in every worker's bookshelf. We have been unable to think of any tropical disease which has been passed unnoticed—except severe and three day fever which the authors evidently classify under dengue.

Very full extracts and references are given in all the subjects that have been much worked at in recent years, such as plague, cholera, kala-azar, insects, dysentery, sleeping-sickness, puoplasmosis, etc. We have no hesitation in recommending every medical officer to obtain possession of a copy of this most useful and really interesting résumé of recent researches.

Correspondence

"HÆMAGLOBINURIA IN MALARIAL FEVER"

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Some time ago I got two interesting cases of "Malarial Fever." A boy aged seven years had an attack of malarial fever for several months. He had enlarged spleen and liver. For two months the boy had no fever and from his outward appearance nothing of his illness could be detected, although on examination the spleen and liver were found slightly enlarged. The boy got slight fever one day and in the night passed port wine coloured urine twice. This gave much anxiety to the parents and relatives of the boy. The next morning I was called to attend. I went to see the case and found that the patient had got high fever—the temperature being 104.6°F. He passed port wine coloured urine in my presence. On examination it was found that his heart was failing. Every precaution was taken but, unfortunately, the boy died the same night. Four days after this the father of the boy came for me and told me that his daughter, aged 15 years, was passing port wine coloured urine. I at once went to see the case on examination, it was found that she was also a malarial patient and had enlarged spleen and liver. Her heart sounds were very weak and irregular. The liver was found very tender and fomentations were applied, and she was given internally cardiac tonics, calomel was also given to relieve the bowels which were constipated. After two days the colour of urine gradually changed and the condition of heart improved. After a week's treatment the patient gradually recovered. A hospital assistant of 27 years' experience in this locality who saw these cases with me told me that he never got such cases here. In these two cases "quinine" was not used for nearly two months. I had in another case of malarial fever with enlarged spleen and liver, where I was bound to use "quinine" in big doses by the orders of my superior officer, to stop the fever. In that case the patient got "Hæmoglobinuria," which disappeared as soon as the administration of quinine was discontinued.

DHARMADA,
(NADIA)

Yours truly,
N K CHATTERJI,
Hospital Assistant

THE INDIAN SUBORDINATE MEDICAL DEPARTMENT AND BRITISH QUALIFICATIONS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I trust you will permit me to say a few words on behalf of the members of my service who are anxious to secure British qualifications in the United Kingdom. The difficulties in the way are not only those of expense and a want of ambition. These can be overcome by economy and official encouragement.

The standard of general education in Anglo Indian Schools in India is equal to if not superior, to the requirements of the British General Medical Council in London, and yet the passing of the Government High School examination does not open the doors of the British Medical Schools to our children.

Leaving apart the question of our young men fresh from Indian Schools, let us see how this disability affects members of the Indian Subordinate Medical Department, who are qualified medical men, and whose standard of general education, even when they have not passed the Government High School examination, is considered by the Indian Government no bar to their holding Civil Surgeoncies and other important Government Medical appointments in India.

But let one of these very men wish to obtain a British degree for the sake of the "Hall Mark," and he is told that he must first pass a Preliminary Examination in general education in England, before he can sit for his professional examination.

When you come to think of it, it is not only ridiculous and a short-sighted policy to enforce the above restriction, but it is a distinct hardship to a clever and ambitious man who has the brains and money to pass the British examinations. A man of ten or fifteen years' service who left school fifteen or twenty years ago, is absolutely at sea when it comes to restudying Arithmetic, Algebra, and Latin, etc. He is faced with the necessity of studying for two examinations instead of one—the result is he hesitates, and in most cases, does nothing. Now, whose is the fault? Not his. It is a faulty system of education in Indian Schools coupled with Anglo Indian inertia that lies at the root of the evil. It is a pertinent question to ask, why should the British Universities be permitted to brand these men as unfit for the

bestowing of their degrees on them, when the Indian Government reared them in its colleges, and has honoured them with its Diploma in Medicine, Surgery and Midwifery? Is this not a slight on the Indian Government?

To remedy this state of affairs, and to raise the standard of professional merit in the Department, I beg to be permitted to offer the following suggestions for publication, and comment—

(I) The Entrance Examination to the Medical Colleges in India (in the case of Military Assistant Surgeons) should be made equal to the Preliminary Examination in general education as required by the British General Medical Council with the exception that Urdu and Persian be substituted in lieu of the two continental languages.

(II) The Preliminary Examination in general education, as required by the British General Medical Council, could be held with advantage out in India, under the authority of the Director General, Indian Medical Service.

(III) The Director General, Indian Medical Service, should be empowered to nominate, annually, suitable candidates for British qualifications, without the necessity of their having to first pass the Preliminary Examination in general education. This special favour to be limited to a period of five years only, for it is certain that within that period all Military Assistant Surgeons with the requisite ambition and means would have availed themselves of the opportunity.

In conclusion, Sir, I would beg the favour of your comments and suggestions, and I trust my humble letter will influence the authorities to approach the British General Medical Council on our behalf.

Yours faithfully,

GHARA HALL,
8th February 1909 }

J R FOY,
ASSISTANT SURGEON,

Resident Medical Officer, Lawrence
Memorial School

DENGUE AND CHITRAL FEVER

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Captain Megaw, in his article dealing with this subject which appeared in the January number of this Journal, has satisfied himself of the identity of these two affections. He has failed, however, to convince me, as I have failed to convince myself, for while I have drawn attention to the many points of similarity between them, I am unable to minimize the importance of those points in which they are dissimilar. Captain Megaw has based most of his argument on the epidemic of fever described by Colonel Fooks. In this epidemic, however, the cases which are described as of the three day type provided many examples of both a rash and terminal fever, signs which are totally wanting in Chitral Fever. The remaining cases were of the seven day type. If the causal factor in these two affections is the same, surely among the 800 and more cases of Chitral Fever, on which my original account of this disease is based, I should have found examples of this seven day type of fever.

An illustration of the importance of not placing too great a reliance on points of similarity between two fevers, in one or both of which the causal factor is unknown, is afforded by the separation within recent years of Paratyphoid from Typhoid Fever.

If we have made one step in advance by separating certain well defined types of fever from among the many included under the term "Malaria," we must be careful lest we too readily agree to their inclusion under another term, and that, "Dengue."

To establish the identity of these two diseases, it is necessary to demonstrate the identity of their causal agents.

I am, Sir, yours faithfully,
R McCARRISON

LONDON,
10th February 1909

QUININE AND PREGNANCY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Will you kindly spare me a little space in your esteemed Journal for the insertion of the following few lines, of my experience of about five years with regard to the administration of this drug in pregnant women. I have used this drug in a large number of pregnancies, in from 3 to 15 gr doses, three or four times a day, but I have never seen any harmful result following in any of my cases which included various periods of pregnancy from third month to full term. Recently I gave this drug to a primipara case of pregnant Lushai woman with three months' fetus and continued the drug for nearly two months without the least

harm This Lushai woman gave birth to a healthy child last month

I had good chances of using this drug in a good many cases of pregnancy when I was in medical charge of a Tea Estate, an extremely malarious place in Sylhet, before entering into Government service

Yours very sincerely,
SYED ABDUS SHAHID
CIVIL HOSPITAL ASSISTANT,

*In charge Civil Hospital,
Thanghana, Lushai Hills*

Dated the 11th March 1909

PUERPERAL ECLAMPSIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Unfortunately I did not see Major Gifford's article on Puerperal Eclampsia

In one of the issues of the *B M J* or *Lancet* last year an article appeared strongly advocating nitroglycerine hypodermically and by the mouth, specially the former

One very severe case recovered in this hospital under this treatment. Delivery was effected as rapidly as possible. Mins 11 of a 1% Soln of Nitroglycerine were injected every two or three hours Chloroform was used as required

Yours etc,
C DUER,
MAJOR, I M S,
Civil Surgeon, Maymyo

A USE FOR THE CUPPING GLASS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Bier's treatment for chronic and acute inflammation which I have been employing with considerable success lately, furnishes a new use for the cupping glasses, which are to be found in most hospitals in India

Applied to the troublesome wounds in groins after removal of masses of suppurating glands, so common in this country, they have a most beneficial effect

Yours, etc,
C DUER,
MAJOR, I M S
MAYMYO, }
18th February 1909 }

ASCITES AND PREGNANCY

To The Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—Has any of the readers of your much esteemed Journal seen a case of Ascites in a female subject? If yes, I should be very much indebted to you to know if the ascetic fluid oozed into the uterine cavity through the Fallopian Tubes. The answer will probably be No. But why? In a cavity closed on all sides, one opening, within certain dimensions, would fail to allow the passage of even a drop of liquid through, but the two Fallopian Tubes, the right and the left, open into the general peritoneal cavity, to the right and left of the uterus respectively, thus facilitating the passage of fluid on physical grounds. Besides the fimbriated extremities of the tubes embrace an area that could conveniently accommodate a considerable quantity of fluid, and the termination of the tube is so irregularly disposed of, that pressure (if it is the cause of the prevention) is also irregularly exerted, thus materially helping the passage of fluid. The opening of the tubes also in a most dependent position favouring gravitation and the uterine cavity, though small in capacity, being anless, should exert a suction action in virtue of the vacuum formed. What then is it that prevents it? The consistence of the fluid, though albuminous and partially sticky, is perfectly liquid and in some cases watery. The tube also, considering its structure, is patent to some extent and in some measure elastic. The abdominal opening of the tube too is so situated as to receive ovi (or fluid?) from upwards because of its attachment to the ovary by one of the processes of the fimbriated extremity—the "fimbria ovarica." And yet there is something—a very potent something. Yet another question suggests itself to me—Can pregnancy occur in an ascetic female? Could any one quote an example of a successful impregnation after a well marked and unrelieved case of Ascites?

Trusting that some one of your numerous readers will enlighten me on the above points

I beg to remain,
Dear Sir,
Yours very sincerely,
D'CURNHA PHILLIPS,
CMS LRCP & S,
Apothecary, Arkonam

RAILWAY DISPENSARY, }
ARKONAM }
19th February 1909. }

QUININE IN PREGNANCY

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I send you the following as a case of interest, the more so as the effect of Quinine in pregnancy is now being discussed—

On the 6th of February I was called in by the Jewish Alliance Society to attend a poor Jewess. This was her condition—

Reported to be three months pregnant but the uterus reached to about the umbilicus. Patient was extremely anemic with a puffy face and oedema of back and lower extremities, no foetal heart audible

Examination of the lungs showed tuberculosis, apex of right and left lung consolidated, had repeated attacks of hæmoptysis, but just then there were not present any very active signs

I saw her again on the 10th and advised her to seek admission into the Mission Hospital. This she and her people promptly refused, the latter reconciling themselves to the feeling that she was certainly going to die and this event would suit them better in their own home. On the 14th her discomfort having greatly increased, she submitted to an examination. The os uteri admitted one finger and this revealed a peculiar doughy mass

I put the patient on large doses of Quinine and before 24 hours had elapsed a huge hydatid mole was expelled. The patient then absolutely refused any further interference, though I explained to her the possibility of pieces of the mole being left behind. Ergotin was added to the Quinine for the next 48 hours during which time she continued passing grape looking vesicles

The patient is now doing well save for symptoms of her lung complaint which, strange to say, began to worry her directly the mole was out

Yours obediently,
H BASIL ROSAIR,
ASSISTANT SURGEON,
In Medical charge,
R I M S "Comet"

BAGHDAD, }
7th March, 1909 }

WANTED

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—I require the issue of April 1906 of "The Indian Medical Gazette" to complete Volume XLI for binding. The number being out of print, will any of your readers having a spare copy kindly communicate with me? No reasonable price will be refused

STATE SURGEON'S OFFICE, } Yours faithfully,
TAIPING, PERAK, } M J WRIGHT,
FEDERATED MALAY STATES, } State Surgeon, Perak
17th March 1909 }

Service Notes

As we go to press, it has just been given out that Lt. Col C P Lukis, M D, F R O S, I M S, has been appointed to officiate for Surgn Genl Sir Gerald Bomford, M D, K C I F, I M S, as Director General, Indian Medical Service

DEATH OF AN ASSISTANT SURGEON FROM BLOOD POISONING

At Laheriasaia, Darbhanga, early on the morning of the 16th instant there passed away a well known figure in Darbhanga, Assistant Surgeon Jogendra Nath Bose, M B (Calcutta), adding one more name to the long list of Surgeons who have met their death in the practice of their profession

The unfortunate gentleman pricked his finger while operating upon an abscess in the Hospital seven days previously, during the absence of the Civil Surgeon on tour, and although on the return of the latter injections of antistreptococci serum and other means were adopted to save his life, gangrene supervened on the 13th instant and spread up the forearm with terrible rapidity

The patient had been in bad health lately, symptoms of diabetes having become more marked during the last twelve months

His memory will long be cherished by rich and poor, for he was a very popular medical officer, being very gentle in his dealings with the sick and possessed of almost infinite patience. He joined the Medical College, Calcutta, in 1882, and graduated M B in 1889, in which year he entered Government Service. He lost his wife in 1903 and has left two little sons and three daughters to mourn his loss

Three of his fellow practitioners (one of whom is an old class mate) were assiduous in their care of him, taking turns

in sitting up with the patient at night. It is indeed proverbial that to the foreigner in India the truest practical sympathy is invariably manifested by those who have learned the principles of Western Medical Science,—with its ideals of altruistic unselfishness.

CAPTAIN A E HAYWARD PINCH, I M S (retired), late Medical Superintendent of the Medical Graduates' College and Polyclinic has been appointed Director of the Radium Institute, London. The Council in accepting Captain Pinch's resignation has adopted the following resolution and has ordered it to be inscribed in the minutes of the Council and to be published in the Polyclinic Journal —

"In accepting with regret Captain Hayward Pinch's resignation of the position of Medical Superintendent, the Council desires to place on record their high and cordial appreciation of the loyal and zealous service he has rendered to the College during his ten years' tenure of office. It is not too much to say that Captain Pinch has devoted himself without qualification or stint to the interests of the Polyclinic, and has in no small degree, both as Medical Superintendent and as lecturer and teacher, contributed to the usefulness and good repute of the institution. The Council is well aware that the members and subscribers, equally with themselves, recognize and value both the thoroughness and efficiency which have distinguished Captain Pinch's work and the courtesy and goodwill which have marked his relations with all the friends of the College. It is with all good wishes for his continued success and with sincere gratitude for his long and valuable services that the Council now accepts his resignation and cordially bids him farewell."

TRANSFER.—The services of Major G H Bensley, I M S, Superintendent, Multan Central Jail, are placed at the disposal of the Hon'ble the Chief Commissioner, Central Provinces, with effect from the date on which he may relinquish charge of his duties.

LIEUTENANT J A S PHILLIPS, I M S, was appointed to act as Civil Surgeon, Jacobabad, from the 3rd November 1908 to the 9th December 1908, in addition to his own duties.

MAJOR T A O LANGSTON, I M S, has been appointed to act as Civil Surgeon, Jacobabad, from the 10th December 1908, in addition to his own duties.

WITH effect from the 8th October 1908, consequent on the confirmation as Sanitary Commissioner of Major J C White, I M S —

Major S A. HARRISS, I M S, whose services have been permanently placed by the Government of India at the disposal of the Government of the United Provinces, to be a Deputy Sanitary Commissioner.

WITH effect from the 29th of January 1909, consequent on the death of Major W H Ori, C I E, I M S, Civil Surgeon —

Captain W M Pearson, I M S, whose services have been permanently placed by the Government of India at the disposal of the Government of the United Provinces, to be a Civil Surgeon, 2nd class.

WITH effect from the 1st March 1909, consequent on the retirement of Lieutenant-Colonel T H Sweeny, I M S, Civil Surgeon —

Captain C Dykes, I M S, whose services have been permanently placed by the Government of India at the disposal of the Government of the United Provinces, to be a Civil Surgeon, 2nd class.

CAPTAIN W J COLLINSON, I M S, Assistant Plague Medical Officer, Shahpur, was granted medical leave in India from the forenoon of the 24th August to the afternoon of the 30th November 1908, under paragraph 358, Army Regulations, India, Volume I. He resumed charge of his duties on the forenoon of the 1st December 1908.

His Excellency the Governor in Council is pleased to appoint Lieutenant W D H Stevenson, I M S, to act as Assistant to the Director, Bombay Bacteriological Laboratory, vice Dr F M Gibson, M B, B Sc.

THE services of Captain F W Sumner, M B, F R C S F, I M S, are placed temporarily at the disposal of the Government of the United Provinces.

CAPTAIN BAKET, I M S, relinquished charge of the office of the Special Plague Medical Officer, Burma, on the afternoon of the 16th January 1909.

FIRST Class Military Hospital Assistant, No 1288, Munir Swami Mudaliar assumed charge of plague duty in the Mandalay District on the forenoon of 9th February 1909.

THIRD Grade Civil Assistant Surgeon Maung Shwe Ge relinquished charge of his duties as Special Inoculation Officer, Irrawaddy Division, on the afternoon of 25th January 1909 and assumed charge of similar duties at Mandalay Town on the afternoon of the 2nd February 1909.

CAPTAIN L A H LACH, I M S, relinquished charge of his Special Plague duty at Rangoon on the afternoon of 14th January 1909 and assumed charge of duty in connection with the suppression of plague at Mandalay Town on the forenoon of 16th idem.

MAJOR S A HARRISS, I M S, Officiating Deputy Sanitary Commissioner, I Circle, to hold charge of the office of Deputy Sanitary Commissioner, II Circle, in addition to his own duties, from the afternoon of the 13th February 1909.

MAJOR W G RICHARDS, M B, I M S, Medical Storekeeper to Government, Madras, is granted 2 months and 8 days' privilege leave combined with 5 months and 22 days' furlough, with effect from the afternoon of the 3rd March 1909, under Articles 233, 247, 303 (ii) and 303 (b) (iv) (2), Civil Service Regulations.

LIEUTENANT COLONEL L DAMODAR PURSHOTAM WARIKER, I M S, Madras, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 1st April 1909.

LIEUTENANT COLONEL W H B ROBINSON, I M S, Bengal, an Agency Surgeon of the 2nd class and Civil Surgeon of Bikaner, is appointed to hold charge of the current duties of the office of Residency Surgeon in the Western States of Rajputana, in addition to his own duties, with effect from the 28th January 1909, and until further orders.

THE services of Captain C E Palmer, M B, I M S, are placed temporarily at the disposal of the Government of the United Provinces for employment in the Jail Department.

THE undermentioned officer is granted privilege leave for two months and five days and leave out of India for nine months and twenty five days, in continuation, from 22nd September 1908 under the leave rules of 1886 for the Indian Army —

Captain I M Macrae, I M S, late Officiating Superintendent, Agra Central Jail, Pension service 5th year commenced 1st September 1908.

THE services of Colonel H St C Canuthers, I M S, are placed temporarily at the disposal of the Government of Madras.

THE services of Captain W H Cox, D S O, I M S, are placed temporarily at the disposal of the Government of Burma for employment in the Alienists' Department.

LIEUTENANT TO BE CAPTAIN — William Haywood Hamilton (provisionally).

ASSISTANT SURGEON W E KIRKPATRICK and Captain B B Paymaster, I M S, respectively delivered over and received charge of the Kárwár Prison on the 8th March 1909, before office hours.

CAPTAIN H HERRICK, R A M C, and Major A A Gibbs, I M S, respectively delivered over and received charge of the Medical officer, Prison Hospital, Karachi, on the 2nd March 1909, before office hours.

THE Governor in Council is pleased to make the following appointments pending further orders —

Captain C S Lowson, M B, I M S, to act as Superintendent, Yeravda Central Prison, vice Captain H J R Twigg, M B, I M S, proceeding on leave.
Lieutenant G E Malcolmson, M D, I M S, to act as Superintendent, Ahmedabad Central Prison.

WITH effect from the 10th October 1908, consequent on the deputation of Major J C Robertson, I M S, Deputy Sanitary Commissioner, Captain C A Spawson, I M S, Officiating Deputy Sanitary Commissioner, to be substantive *pro tempore* in that appointment.

ON his services being replaced at the disposal of the Punjab Government, Lieutenant-Colonel C J Bamber, I M S, Sanitary Commissioner, Punjab, resumed charge of his duties on the forenoon of the 4th of March 1909, relieving Major E Wilkinson, I M S.

MAJOR E WILKINSON, I M S, is appointed to officiate as Sanitary Commissioner, Punjab, with effect from the afternoon of the 4th of March 1909, *vice* Lieutenant Colonel C J Bamber, I M S, attached to the office of the Principal Medical Officer, 2nd (Rāwalpindi) division, for training

CAPTAIN H HALLILAY, I M S, Officiating Civil Surgeon, Dharmasala, has been granted privilege leave, under articles 250 and 260 of the Civil Service Regulations, for twenty seven days, with effect from the 1st to 27th November 1908, both days inclusive

THE Lieutenant-Governor is pleased to make the following appointments, postings and transfers —

Captain W T Finlayson, I M S, Superintendent, Lahore District and Female Jails, appointed Officiating Superintendent, Lahore Central Jail, with effect from 2nd March 1909, in addition to his own duties, *vice* Captain R M Dalziel, I M S, transferred

Captain R M Dalziel, Superintendent Lahore Central Jail, appointed Superintendent, Multan Central Jail, with effect from 7th March 1909, *vice* Major C H Bensley, I M S, transferred

WITH effect from the 30th of November 1908, consequent on the appointment of Major H R Melville, I M S, to be Civil Surgeon of Simla, West —

Captain W M Pearson I M S Officiating Civil Surgeon, to be Civil Surgeon, 2nd class, sub *pro tem*

WITH effect from the 29th January 1909, consequent on the confirmation as Civil Surgeon, 2nd class, of Captain W M Pearson, I M S —

Captain C Dykes, I M S, Officiating Civil Surgeon, to be Civil Surgeon, 2nd class sub *pro tem*

WITH effect from the 1st March 1909, consequent on the confirmation as Civil Surgeon, 2nd class, of Captain C Dykes, I M S —

Captain R F Burd, I M S, Chief Plague Officer, to be Civil Surgeon, 2nd class, sub *pro tem*, continuing as Chief Plague Officer

CAPTAIN J W D MEGAW, M B, I M S, on return from leave, is appointed to do general duty at the Presidency General Hospital, with effect from the 2nd March 1909 or until further orders

CAPTAIN J W D MEGAW, M B, I M S, on general duty at the Presidency General Hospital, is appointed to act as 1st Resident Surgeon of that Hospital, during the absence, on leave, of Captain J G P Murray, I M S, or until further orders

THIRD class Military Assistant Surgeon L McCutts was on general duty at the Medical College Hospital, Calcutta, on the 7th February 1909

THIRD class Military Assistant Surgeon J C Chalke, I M S, is appointed to act as apothecary at the Presidency General Hospital, with effect from the forenoon of the 12th December 1908, *vice* Military Assistant Surgeon F H Gleeson, on leave

THE services of Captain W C H Forster, I M S, on special duty in connexion with the enquiry into the prevalence of malaria in Bengal, are replaced at the disposal of the Government of India in the Home Department, with effect from the 1st April 1909

INDIAN MEDICAL SERVICE SPECIALISTS—The under mentioned officer is appointed a specialist in the subject noted, with effect from the 2nd October 1908 —

Prevention of Disease

Lieutenant W L Harnett, Bugade Laboratory, Dehra Dun

CAPTAIN T G N STOKES I M S, Civil Surgeon, Hoshangabad, is deputed on special duty at Pachmahal, for the period from the 1st April to the 30th June 1909, both dates inclusive

THE services of Lieutenant Colonel A Silcock, I M S, Civil Surgeon and Superintendent, Lunatic Asylum, Jubulpore, are replaced at the disposal of the Government of India, Home Department, with effect from the forenoon of the 25th March 1909

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta

Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12 including postage, in India Rs 14, including postage, abroad

BOOKS, REPORTS, &c, RECEIVED —

- Formulaire des Medicaments Nouveaux Pour 1909 H Bocquillon
Lemousin J B Baillière et Fils, Paris.
Retinitis Pigmentosa y W T Shoemaker, M D (J B Lippincott Co, Philadelphia)
The Development of the Leishman Donovan Parasite in *Cimex Rotundatus* (Capt. W S Patton, I M S, King's Institute Madras)
Journal of the Incorporated Society for the Destruction of Vermin Edited by W R Boelter, Esq Quarterly (John Bale, Sons and Danielsson, London)
Bulletin of the Pasteur Institute of Southern India
Hepatocoon Perniciosum A Hæmoglobarine Pathogenic for White Rats, with a description of the Sexual Cycle in the Intermediate Host, a Mite (*Lelaps Echidninus*). By W W Miller, Hygienic Bull. No 46
The Operations of Aural Surgery also those for the Relief of the Intercranial Complications of Suppurative Otitis Media C E West F R C S and S R Scott, M S, F R C S, 1909 (H K Lewis, Cowser Street, London)
The Causation of Sex A new Theory of Sex Based on clinical Material The Forecasting of the Sex of the Unborn Child, and on the Determination or Production of Sex at Will By E Rumley Dawson M R C S London, 1909 (H K Lewis, Gower Street)
Gunshot Wounds By G G Spencer, M B, F R C S, Major, R A M C (Oxford University Press)
Sleeping-Sickness Bureau Bulletin No 3 January, 1909
Why and How the Surgeon should attempt to Preserve the Vermiform Appendix By C B Keetley, F R C S London
Annals of Tropical Medicine and Parasitology, Liverpool School of Tropical Medicine January, 1909
The "Vulhelm Treatment of Diseases of the Heart and Circulation By Leslie Thorne Thorne, M D (Messrs Baillière, Tindall & Cox, London 1909)
The Annals of Physico Therapy, Paris
High Frequency Effluvia and Sparking in the Treatment of Malignant Tumours By Dr J A Rivière, Paris
Guide to Surgical Anatomy and Practical Surgery By V S Sanzgiri, Bombay, 1909
The Edinburgh Stereoscopic Atlas of Obstetrics By G F Balfour Simpson M D etc and Edward Burnet, M B, B.Sc., etc Section III (The Caxton Publishing Co, London)
Third Report of the Wellcome Research Laboratories, at the Gordon Memorial College, Khartoum A Balfour, M D B.Sc., Director and as a Supplement—A Review of some of the Recent Advances in Tropical Medicine, Hygiene and Tropical Veterinary Science By A Balfour, M D, B.Sc. and R G Archibald M B, R A M C
The Body at Work A Treatise on the Principles of Physiology By A Hill, M A, M D, F R C S (Messrs Longmans, Green & Co, London)
Tropical Medicine Hygiene and Parasitology By Gilbert E Brooke M A (Contab) L R C P (Edin), D P H (Messrs Charles Griffin & Co London 1908)

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Capt McCarrison, I M S, London Major Moncrieff, I M S, Parachinar
Capt S Haughton, I M S, Nowshera Registrar, R C of Physicians, London V S Sanzgiri Bombay Col Pilgrim, I M S, Calcutta R V Bapat, Kolhapur City, Asst Surgn Abdul Qadir Kohat Major Wall, I M S, Almora Dr Haffkine, Calcutta, Col W J Buchanan, I M S Calcutta, Messrs W B Saunders & Co, London Capt. T B S Williams, I M S, Bushire Messrs Bale, Sons and Danielsson, London Capt O Brodrick I M S, London, Capt W Long I M S, Madras The Registrar, Genl Med Council London Capt. Gidney, Assam Major Clayton Lane Monghyr, Capt Connor, I M S, Calcutta, Major Johnston Bangalore Hospital Asst Syed Abdus Shahid, Lushai Hills, Col W Alpin, I M S, Essex Surgn Genl Sir Gerald Bomford I M S, Calcutta The Asst. Genl, Calcutta, The Controller Military Accounts Calcutta, Capt F C Rogers I M S, Cuddapah Major Lindsey Laherisera, Capt MacGillchrist, I M S, Edinburgh The Utility Motor Car Co, London Sir Thos R Fraser, M D, LL D, B.C.D., F.R.S., Edinburgh James A Gunn M A B.Sc. Edinburgh, Dr A Newell, Calcutta, Dr H B Rosair, R I M S "Comet, Baghdad, Capt Franklin, I M S, Meshed Lt Steele Houghton I M S, Nowshera Major O Langston I M S, Jacobabad, Lt Russell I M S, Bangalore Dr W J Wright, State Surgeon Perak, Capt Connor, I M S Calcutta Major W D Sutherland, I M S Calcutta Capt J C Holdich Leicester, I M S, Simla

Original Articles

THE SERO DIAGNOSIS OF SYPHILIS

By W. D. SUTHERLAND, M.D.,

MAJOR, I. M. S.

IT is matter of common knowledge that when we are in doubt as to our patient having contracted syphilis, we but rarely receive aid from him in reaching the truth. He may be really ignorant, or only wilfully so, and deliberately try to deceive us. Any means, then, which will enable us to dispense with our patient's help, and to control our clinical observations, we should readily accept. Such means we have in the sero-diagnosis of syphilis.

In order to understand thoroughly the processes involved, we must first have a clear idea of the principles on which these are based. When an animal of species A has been immunized by injections of a suspension of the erythrocytes of an animal of species B, its serum will contain specific anti-bodies hæmolytic for the erythrocytes of species B, i. e., when mixed with these, the serum will cause them to dissolve, them and no others.

This hæmolytic antiserum contains, as we have said, the specific antibodies—immune substance, sensitizing substance, amboceptors—which cause hæmolysis and, in common with all fresh sera, it also contains complement—alexin cytase. The amboceptors are thermostable—not affected by heating the serum, while the complement is destroyed by heating to 56°C for half an hour. This heated antiserum is thus rendered inactive, but may be at any time reactivated by adding to it any fresh serum, which replaces the complement that had been destroyed.

The mixture of inactive hæmolytic antiserum plus fresh serum may conveniently be termed a hæmolytic system. It can be made at any time when occasion for its use arises. Now, if to a suspension of the erythrocytes of the species for which the hæmolytic antiserum is specific—these may be termed the antigen—there be added this hæmolytic system, the erythrocytes will be dissolved, and this solution will be indicated by the occurrence of laking. For this reason we may conveniently term the suspension of antigen—erythrocytes, the indicator.

But as Boidet and Gengou (1) first discovered, if there be present any other inactive antiserum with its antigen in the mixture, hæmolysis will not take place. The explanation of this is that the complement of the hæmolytic system is deviated from the hæmolytic amboceptors, being anchored by the amboceptors of the other antiserum which have been rendered capable of anchoring it in consequence of the presence of their antigen.

Perhaps the following will make this somewhat clearer —

- | | |
|--|---|
| | } Fresh serum of any kind
+
Inactive hæmolytic amboceptors specific for erythrocytes α |
| 1 Hæmolytic system | |
| 2 Hæmolytic system + erythrocytes α in indicator = Hæmolysis | |
| 3 H S + α + any other antigen = Hæmolysis | |
| 4 H S + any other Antiserum + α = Hæmolysis | |
| 5 H S + any other Antiserum z + Antigen z + α = No Hæmolysis as (Antiserum z + Antigen z) has anchored complement of H S, leaving inactive Hæmolytic amboceptors, which cannot act alone on α | |

Boidet and Gengou worked with an antimicrobial serum and a suspension of its antigen microbes, as did Moreschi (2) at first. Later Moreschi worked with an anti-eggalbumin serum and its antigen, and then Neisser and Sachs (3) worked with various bloods and their antisera, thus making a test of forensic value for they found that where a known antiserum is present and hæmolysis does not take place, the presence of the antigen of the antiserum may be predicated. If to a solution of a bloodstain we add an anti-human serum, and then a hæmolytic system and its indicator, if hæmolysis occur, the bloodstain is not due to human blood. On the other hand, if hæmolysis does not occur, the bloodstain is due to the antigen of the anti-human serum, the combination of antigen and antiserum having deviated the complement of the hæmolytic system.

Wassermann, Neisser and Bruck (4) then applied the method to the diagnosis of syphilis. They worked with an aqueous extract of the liver of a syphilitic foetus as the antigen, the patient's serum being taken to contain antibodies for the *Treponema pallidum*. Their results appeared to establish the existence of antiluetic bodies in the serum of syphilitics, but later Michaelis (5) and Marie and Levaditi (6) found that the results obtained when an extract of a normal liver is used are similar to those obtained when an extract of a syphilitic liver is employed. The latter observer stated that 10 times as much normal liver extract was required as the quantity of syphilitic liver extract. Then Levaditi and Yamanouchi (7) found that lecithin and other lipoids may be employed instead of liver extract, a fact confirmed by Fleischmann (8) and also by Porjes and Meier (9) so we may now take it that the deviation of complement which occurs when Wassermann's test is carried out is due to the presence of lipodiotropic substances in the serum of the syphilitic, and that these substances are absent or at most present in very small amount in the serum of non-syphilitic individuals. This does not, of course, mean that there are not also anti-treponema bodies present. As to the existence or non-existence of these, the question is by a long way not definitely settled.

We may carry out the Wassermann test thus. As antigen, an emulsion of lecithin is made by

dissolving 0.1 gm in alcohol and emulsifying this by the addition of 100 c.c. of physiological salt solution (0.85 or 0.9 per cent), of the emulsion 0.1 c.c. is taken and made up to 1 c.c. for the test. As *antisera*, the patient's own serum is used, having been previously heated to 56°C for half an hour to deprive it of complement. It appears that if instead of the patient's serum we take his cerebro-spinal fluid, this does not require to be rendered inactive, as, according to Gay, Southard and Richards (10) the cerebro-spinal fluid never contains complement. As *indicator*, a 5 per cent suspension of washed sheep's erythrocytes in salt solution is employed. As the *haemolytic system*, we have (1) fresh guinea-pig serum, as complement, and (2) as haemolyticamboceptor an inactive anti-sheep erythrocyte rabbit serum, *i.e.*, the previously heated (to 56°C) serum of a rabbit that has been immunized by the injection of a suspension of washed sheep erythrocytes. This haemolyticamboceptor must be previously standardized in order to fix its minimal dose, for 1 c.c. of indicator. The standardization is carried out according to the following protocol —

Table	Dilution of Haemolyticamboceptor	Quantity actually present of H A in tube
1	1—10 1.0 c.c.	1 c.c.
2	0.6	0.5
3	0.25	0.25
4	0.15	0.15
5	1—100 1.0	0.1
6	0.5	0.05
7	0.25	0.025
8	0.15	0.015
9	Control containing only salt solution	

Where required the quantities are made up to 1 c.c. with salt solution

To each tube is then added 1 c.c. of indicator and a constant quantity of complement, conveniently 0.1 c.c. The contents of the tubes are then shaken, and after the tubes have stood in the thermostat at 37°C for two hours, the results are noted. Supposing that it is found that but slight haemolysis has occurred in tube 9—the control—it is clear that the actual haemolytic power of the guinea-pig's serum on the indicator is not great enough to disturb the calculation. We then take the last tube in which haemolysis is complete, and the first in which it is incomplete and strike a balance between the quantities ofamboceptor in these. Thus, if tubes 3 and 4 are the first and last, the balance will lie between 0.25 and 0.15 c.c., and 0.02 c.c. is the minimal haemolytic dose of this haemolyticamboceptor. Twice this quantity is the working dose for the test.

If, however, marked haemolysis has occurred in tube 9 the dose of complement must be decreased. The standardization will have to be done over again with 0.1 c.c. of a 1—2 dilution of complement, *i.e.*, half the first dose but of equal volume.

The complement is always fresh guinea-pig serum. Theoretically this ought also to be standardized, but practically 0.1 c.c. is found to be a convenient quantity. In the forensic test prior standardization of the complement is obligatory, and for this reason the test is one which cannot be carried out in the tropics for light and heat are fatal to complement, so that in the tropics the guinea-pig's serum must be used as soon as it is obtained—by defibrination and centrifugation of the blood.

As in all serological tests, controls are required. Conveniently these may be tubes containing (1) none of the patient's serum but a corresponding quantity of salt solution in its place, (2) some known syphilitic serum, and (3) some known non-syphilitic serum in place of the patient's serum, (4) only salt solution in place of antigen and antiserum.

We shall have then the following —

Tube	Antigen Lecithin emulsion	Antiserum Patient's serum previously heated	Complement
1	0.1 c.c.	0.1 c.c.	0.1 c.c. Fresh guinea pig serum
2	Salt solution	0.1 c.c.	
3	0.1 c.c.	Known syph Serum 0.1 c.c.	
4	0.1 c.c.	Known non syph Serum 0.1 c.c.	
5	Salt solution	Salt solution	

Tube contents well shaken, and tubes kept at 37°C for one hour.

Then into each tube are put—

(a) 1 c.c. of indicator

(b) Working dose of haemolyticamboceptor

And the tube contents having been well shaken, the tubes are kept at 37°C for two hours, and the results noted.

In an ordinary case we should then have haemolysis in tubes 2, 4, and 5, with no haemolysis in tubes 1 and 3.

The reader will have gathered from the above that Wassermann's test is only to be carried out in a well-equipped laboratory. Sachs and also Noguchi lay stress on the necessity for the operator of thorough knowledge of serological work. The general practitioner then will have recourse to some easier test. For him Noguchi "has devised the following modification of Wassermann's test," but the reader will judge whether he can carry it out here in India in a civil station. As *antisera*, a drop of the patient's blood serum, obtained by pricking the ear lobe and allowing the blood, collected in a capillary tube, to clot. As *antigen*, a drop of an emulsion of lecithin obtained by dissolving 0.3 gm in 50 c.c. absolute

alcohol and adding 50 cc of distilled water to this solution. As indicator, a drop of the patient's blood treated by adding to it 4 cc of salt solution to form a suspension of the erythrocytes. Of this suspension 1 cc is added to the contents of each tube. As hæmolytic system, we have (1) complement from fresh guinea-pig serum of which 0.05 cc is put into each tube, (2) hæmolytic amboceptor obtained from a rabbit that has been immunised by injections of human blood. This should be standardised and twice the minimal dose used as the working dose. The tubes will then be arranged thus —

Tube	Patient's serum	Indicator	Guinea pig S	Antigen Lectin emulsion	Final Hæmolytic result
1	1 drop	1 cc	0.05 cc	1 drop	No
2	1 drop	1 cc	0.05 cc	Salt solution 1 drop	Yes
3	Known normal human serum 1 drop	1 cc	0.05 cc	1 drop	Yes
4	Known syphilitic serum 1 drop	1 cc	0.05 cc	1 drop	No

The tube contents are well shaken and the tubes carried in the vest pocket for an hour. Then to the contents of each is added the working dose of hæmolytic amboceptor. The tube contents are again well shaken and the tubes carried in the vest pocket for two hours, the results being noted. These should be as indicated, if the patient be syphilitic.

Noguchi tried his modification alongside Wassermann's test in more than 200 cases, the results being as follows, only positive results being noted —

	Cases	W	N
Primary syphilis	15	10	15
Secondary syphilis—florid	57	46	57
Secondary syphilis—latent	26	13	18
Tertiary syphilis—florid	51	42	45
Tertiary syphilis—latent	32	24	27
Tabs dorsalis	6	1	6
Suspicious cases	31	16	21
Non syphilitic cases	5	0	0

Noguchi (12) also devised a test based upon the fact that in syphilis the total globulin content of the serum is markedly increased. This globulin test, however, has the disadvantage of requiring the *visus eruditus* as the critical opalescence reaction occurs, in a less degree it is true, but still in a visible form, in the case of non syphilitic patients. To obviate mistakes, Gay and Fitzgerald (13) have modified the test by taking the euglobulin as its basis, instead of saturating the serum with a saturated solution, neutral, of sulphate of ammonium, and thus precipitating all the globulins they carry the saturation to the point at which euglobulin alone is thrown down ($\frac{2}{3}$ saturation). Of

the patient's serum 0.1 cc is taken and made up to 1 cc with 0.9 per cent salt solution. To this is thus added 0.5 cc of sat sol of ammonium sulphate. The mixture is then centrifugated for 20 minutes at 2,400 turns, and, the supernatant liquid having been thrown away, to the sediment is added 1 cc of salt solution and 1 cc of a 10 per cent solution of butyric acid in salt solution. The mixture is then heated to boiling. Almost at once marked opalescence with, it may be, a deposit of flocculi occurs.

They tried this euglobulin test alongside Wassermann's and the globulin tests with the following results—the numerator of the fraction gives the number of cases in which a positive reaction was obtained, the denominator giving the number of cases tested.

Known syphilis —

$$W \frac{19}{24} G \frac{20^*}{29} E \frac{33}{35} \quad | \quad *8 \text{ doubtful, 1 negative}$$

Non syphilitic cases —

$$\text{Acute infectious diseases } W \frac{0}{12} G \frac{2}{3} E \frac{9}{15}$$

$$\text{Other diseases } W \frac{0}{16} G \frac{0^*}{13} E \frac{4}{16} \quad *6 \text{ doubtful}$$

They also tested the cerebro-spinal fluid by Wassermann's method, and by the following method devised by Noguchi — 0.5 cc of bloodless c s fluid is taken and to it are added 2.25 cc of a 10 per cent solution of butyric acid in salt solution. The mixture is then boiled, and afterwards to it is added 0.5 cc of a normal (4 per cent) solution of sodium hydrate. The mixture is then boiled again. If opalescence of the fluid occur and be followed by the precipitation of flocculi, the presumption is that syphilitic infection is present.

$$\text{Known syphilis } W \frac{6}{12} N \frac{10}{12}$$

Non syphilitic cases —

$$\text{Infectious with meningitis } W \frac{0}{14} N \frac{13}{14}$$

$$\text{Other cases } W \frac{0}{12} N \frac{4}{12}$$

They conclude that a positive reaction with Wassermann's test is diagnostic of syphilis, but that a negative reaction, especially in tertiary cases, is of little value. Of course, it is obvious that if the patient have been well treated for his syphilis, his reaction is likely to be negative in direct proportion to the efficacy of the treatment. (14) Beckers (15) found that 26 prostitutes who were under the Kiel *police des mœurs* and were known to have had, and been long treated for, syphilis gave a negative reaction, while of 50 who had formerly suffered from syphilis but showed no present signs of the disease, 40 per cent gave a positive reaction. In all doubtful cases, he took positive reaction to the test to indicate the necessity for anti-syphilitic treatment.

So much for the diagnosis of that disease which we owe to the discovery of America,

a fact which Iwan Bloch (16) has placed beyond doubt That a distinct advance of our knowledge has been made, is evident Excluding infections of an acute type, the Euglobulin test promises well, and can always be confirmed in a laboratory by the Wassermann test or a modification of it

- (1) Bordet and Gengou *A I P*, 1901, 289
- (2) Moreschi *Berliner klin Woch* 1906 1243
- (3) Neisser and Sachs *Ibid*, 1905, 1388, 1906, 67
- (4) Wassermann, Neisser and Bruck *Deutsche med Woch*, 1906, 745
- (5) Michaelis *Berliner klin Woch*, 1907, 1103
- (6) Marie and Levaditi *A I P*, 1907, 138
- (7) Levaditi and Yamanoouchi *C R Soc biol*, 1907, 741
- (8) Fleischmann *Berliner klin Woch*, 1908, 491
- (9) Porges and Meier *Ibid*, 1908, 731
- (10) Gay, Southard and Richards Unpubl. ref in No 13
- (11) Noguchi *Muenchener med Woch*, 1909 494
- (12) Noguchi *Journ exp med* 1909, 81
- (13) Gay and Fitzgerald *Boston med and surg journ*, 1909, 157
- (14) Citron *Berliner klin Woch*, 1907, 1371
- Purckhauer *Muenchener med Woch*, 1909, 698
- (15) Beckers *Ibid*, 1909, 551
- (16) Bloch, Iwan *Ursprung der Syphilis Berlin*, 1904

PNEUMONIA ITS TREATMENT BY IRON

By F S C THOMPSON,
CAPTAIN, I M S,
Central Jail, Madnapore

UNTIL the advent of a reliable anti-pneumococcic serum, pneumonia will continue to afford different practitioners scope for the exhibition of various drugs and several methods of treatment

Recently pneumonia has been prevalent in Madnapore, probably the ordinary seasonal incidence, and the Central Jail contributed its quota of cases

In all 14 cases occurred the first four cases between the 1st January and the 7th February gave a mortality of 50 per cent, these were treated on the usual lines by stimulants, *e g*, ammonia, digitalis and strychnia

This high mortality due mainly to the poor physique of the patients led me to try large doses of iron, as this drug had proved so successful before, when exhibited in pneumonia, especially in people with debilitated constitutions

Apart from anæmia, iron has been used in big doses in several diseases, *e g*, dysentery and malaria, and employing it in a similar way in pneumonia is by no means new

Basham's prescription —

R
Liq ammon acetat
Ac acet dil
Tinct ferri perchlor
Aq ad
M ft mist

3i
3i miii
mxv
3i

is an old mixture given in some febrile conditions, etc

Records are not available for me to quote from others who had tried the administration of iron in lobar pneumonia

Hospital Assistant Didar Baksh has compiled a table showing the number of admissions, deaths and percentage mortality of pneumonia cases treated in Madnapur Central Jail since 1901 up to the 18th March 1909 —

Statement showing the number of admission and death-rate per cent of the pneumonia cases treated in the jail hospital during the year 1909, as compared with those of the previous eight years

Year	Admitted	Died	Ratio per cent
1901	18	5	27.77
1902	13	9	69.23
1903	12	7	58.33
1904	9	7	77.77
1905	8	3	37.50
1906	5	1	20.00
1907	14	3	21.42
1908	11	3	27.27
1909	4	2	50.00
1st Jan to 17th Feb	11	1	9.09
18th Feb to 18th March			

From this it is seen that the highest ratio per cent was in 1904, *viz*, 77.7 per cent and the lowest in 1906, *viz*, 20 per cent, the average for the eight years being 42.2 per cent, whereas in 1909 since the iron treatment was started the percentage has fallen to 9.09

The high rate, 42.2 per cent, is chiefly in consequence of the weakly patients received from the jail population, the people of this district having low powers of resistance

Hospital statistics in England show a 20 to 40 per cent mortality

The cases were fairly typical and readily diagnosed from the fæces, sputa, and physical signs

A few details may be of interest in this connection

All the patients were males, whose ages varied from 16 to 46

A temperature chart is given of one case typical of all in this there is a post-critical rise on the day following the crisis

The ratio between respiration and pulse is marked

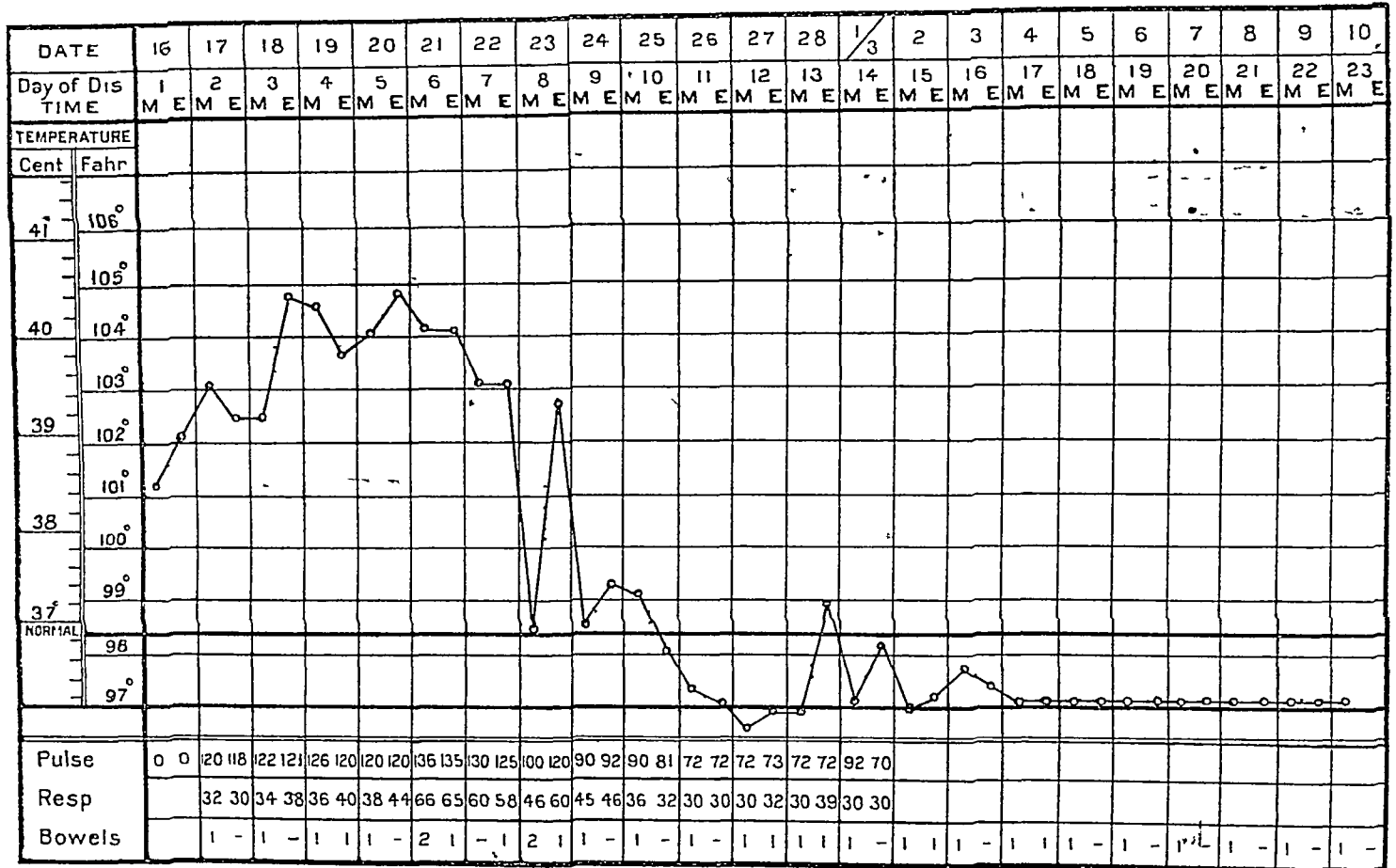
Crisis occurred in all but one man, who had delayed resolution The only fatality was that of a patient who had had seven admissions to hospital in the previous year the man's vitality was extremely low and he contracted double pneumonia, crisis took place on the 10th day, but he died from collapse

Post-mortem showed greatly engorged lungs The pleura covering the upper lobe of the R lung being covered by a thick deposit of mucopurulent material Pleurisy was marked on both sides.

PNEUMONIA ITS TREATMENT BY IRON

BY CAPTAIN F S C THOMPSON, I.M.S.,

Central Jail, Midnapore



A large ante-mortem clot was seen in the right heart

Other organs were affected kidneys, liver and spleen all congested Judging from the severity of the disease in this instance, I think it improbable that recovery would have occurred under any circumstances

The exact treatment carried out consisted in giving the following prescription —

R		
	Liq ferri perchlor	m xv
	Liq ammon acetat	3i
	Aq chloroform ad	3i
Sig	Every 4 hours	

No other drugs or stimulants are administered, with the exception of a purgative to open the bowels freely at the commencement of the disease

But a careful watch is kept on the heart, and if this shows signs of collapse, as indicated by a weak and quickened pulse then cardiac stimulants are called in to aid the failing circulation the pulse is not relied on alone, because it may be full and not much quickened just before death

When necessary, the following prescription is ordered —

R		
	Liq strychninae	m v
	Tinct digital	m vii
	Aqua chloroform ad	3i

This is given alternately with the iron mixture every six hours, *i.e.*, four doses of each in 24 hours

The number of cases treated with iron alone was six, the remaining four needed the addition of the strychnine mixture, no case got anything but iron before the fifth day

Besides these medicines general principles were followed in the management of the cases

The chief lines followed were keeping up the bodily strength by giving nourishment freely in a liquid form—milk, beef tea, chicken and mutton broths, these were taken at two-hourly intervals

A plentiful supply of fresh air was also insisted upon and ensured by taking the windows off the ward

When the temperature rose to 103° F, sponging was done

Bed clothes limited to a sheet and no clothes on the patient

Pain was relieved by applying lin campho to the chest and, when necessary, morphia injected

Chloralamide was ordered for sleeplessness, but efforts were made first to obtain rest by sponging and sometimes alcohol tried

At the crisis collapse was looked out for, and alcohol administered if required

There is no very satisfactory explanation of the action of iron in pneumonia

Generally fevers contra-indicate the use of iron, however, in these cases it does not seem to have upset the stomach

It is not likely that it has a specific action against the pneumococcus

Iron enters the circulation as a complex albumen compound and acts on the red blood cells and not on the plasma it increases the hæmoglobin and therefore aids oxygenation which thus helps the heart, and so carries out one of the great indications in the treatment of pneumonia

The drug is excreted by mucous surfaces and exerts a remote astringent effect, its powers in this way are feeble, and large doses are essential to obtain this action

This astringency lessens the excretion in the affected lungs in the first stage the liq ferri perchlor is chosen as it is the acid preparation and consequently most astringent

The products of inflammation are removed by absorption and subsequent excretion, and not so much by expectoration, so it is not necessary to give expectorants, therefore iron is not contra-indicated on this account

The liq ammon acetat is added as it is a diaphoretic, diuretic and general stimulant

So the initial purge, the iron and ammonia all tend to prevent the accumulation of blood in the lungs, and these are aided by counter-irritation to the chest and free ventilation

In conclusion, I recognise that many cases of pneumonia do well under any treatment, but I certainly believe iron exerts a specially favourable influence on the disease, and is certainly much better than the excessive use of stimulants often adopted

A SUGGESTION FOR THE TREATMENT OF GONORRHOEA

By C DUER,

MAJOR, I M S,

Maymyo

THE serious and far-reaching effects of gonorrhoea render a speedy and complete cure most desirable

One has but to think of stricture of the urethra and its results, of orchitis and sterility, of inflammation of the uterine appendages which is most generally due to gonorrhoea. Of these latter results one sees many in this country both in Europeans and in Natives. In America I was much struck by the large number of operations for removal of uterine appendages. It is difficult to imagine the misery and long-continued suffering represented by them, to say nothing of the resulting sterility

The methods of treatment of gonorrhoea are many, but none appear to be very satisfactory. It is surprising how difficult sometimes it is to cure the mildest attack, even when treatment has been commenced from the first

I would suggest to those in charge of military and large hospitals a trial of Bier's treatment, especially in recent cases, where the inflammation is confined, as I believe it always is, to the

anterior part of the urethra I have myself very little material to experiment on

As to method, I would suggest that an elastic band about 1 inch broad be applied to the penis 2 inches or so above the meatus, continuously, or intermittently, several hours on and several hours off. Rest in bed during the treatment might or might not be necessary. The tightness of the band would have to be carefully regulated so as, while hindering the venous return, not to stop the arterial supply. Frequent washing away of the discharge by some mild antiseptic would be desirable. In addition, irrigation of the urethra beyond the band might be advisable, but I would suggest a trial of the band alone to begin with, and that no drugs be given.

SPECIAL REPORT OF THE MEDICAL COLLEGE HOSPITAL FOR 1908

By C P LUKIS, M.D., F.R.C.S.,

LIEUT. COL., I.M.S.

Principal, Medical College, Calcutta

PART I—MEDICAL CASES

(1) The rationale and results of treatment of cholera by the intravenous injection of hypertonic saline solution

(2) A note on several fatal cases of extensive thrombosis and dilatation of the pulmonary arteries with out valvular lesion (with full *post mortem* reports)

(3) An analysis of 58 cases of cachectical fever, with notes on the atoxyl treatment (illustrated by numerous charts and diagrams)

(4) A note on Calmette's Ophthalmic tuberculin reaction (with tabular statement)

(5) A note on scurvy amongst Pathans in Calcutta

(6) A case of cerebral abscess, cured by operation

(7) On the treatment of leprosy by the administration of large doses of sodium chloride

(8) Analysis of 93 cases of opium poisoning

(9) A case of abdominal aneurysm, bursting sub-peritoneally

(10) A case of aneurysm of the innominate artery, bursting into the trachea

(11) A case of phosphatic diabetes, terminating in phthisis (with chart)

(1) RATIONALE AND RESULTS OF THE TREATMENT OF CHOLERA BY INFUSIONS WITH HYPERTONIC SALINE SOLUTIONS AT THE MEDICAL COLLEGE HOSPITAL DURING 1908

During the four years from 1902 to 1905 inclusive, 417 cases of cholera were treated at the Medical College Hospital with a mortality of 61.2 per cent. This figure closely corresponds with that given by Morehead for a similar class of patients treated at the J. J. Hospital, Bombay, as long ago as 1860, his figures being from 60 to 65 per cent, so that no material reduction in the death rate of this terrible disease has resulted from the great advances in our knowledge of its causation dating from the discovery of the comma bacillus by Koch a quarter of a century ago. In 1906 an effort was made by the Pathologist of the hospital, in conjunction with the then Resident Physician, Captain J. W. D. Megaw, I.M.S., to obtain better results by copious intravenous infusions of normal saline solution, controlling the amounts by their effects in raising the blood pressure to the normal. A slight reduction in the mortality resulted, but in too many cases the injections rapidly restarted the diarrhoea, and within a few hours the marvellous temporary benefit

was completely lost, as has indeed been the experience with all previous workers, from the first trials of Latta and Mackintosh in Edinburgh in 1831, up to the present time. The method was, therefore, once more almost completely abandoned, and the mortality for the years 1906-7 amounted to 51.3 in spite of the use of normal saline injections to a much larger extent than in former years.

During nearly the whole of the present year hypertonic solutions, as suggested by Major Rogers, have been used by the Resident Physician, Captain Maxwell Mackenzie, who was in charge of the cholera wards throughout the severe outbreak of cholera during the first eight months of the year (only some eight cases having been admitted in the last four months) and their effects on the composition and pressure of the blood have been carefully investigated by the pathologist. The considerations which led to the introduction of this method of treatment were the following: In the collapse stage of cholera the diarrhoea becomes much less copious, presumably as the result of the great concentration of the blood owing to the loss of fluid. The intravenous injection of several pints of normal saline solution (0.65 per cent sodium chloride) as hitherto used, will dilute the blood once more and restart the outpour through the damaged intestinal wall. If, however, the lost fluid could be replaced and at the same time a high percentage of salt maintained in the circulating blood, so that the osmotic currents would tend to carry fluids into, rather than out of the blood stream, then the failing circulation might possibly be restored without leading to rapid draining away of the replaced fluid through the bowels. The results which have followed this method of treatment have been most gratifying, but before considering them, it may be well to first briefly mention certain observations which have been made on the blood changes in cholera which furnish a complete scientific basis for the use of hypertonic saline injections.

The relation of the loss of fluid and salts from the blood in cholera to the severity of the disease.—In the middle of the last century Dr. George Johnson strenuously asserted that there was no relationship between the loss of fluid from the body in cholera and the death rate of the disease, and based his advocacy of the castor oil treatment largely on this point. Wall and others, however, have shown that the rapidity of the loss is of no less importance than the actual quantities. The true test of the effect of the loss of fluid on the circulation is the degree of concentration of the blood. By means of measuring the volumes of corpuscles and serum respectively with the haematocrite, it has been found that there is a most definite relationship between the loss of fluid from the blood and the severity of cholera. Thus, in those cases which proved fatal in spite of infusion, almost two thirds of the entire fluid had been lost to the circulation, while in those mild cases which recovered without requiring intravenous injections the loss was but one-third. In an intermediate series of cases which required infusion but recovered, the loss was just over one half and was accompanied with a marked degree of collapse. The amount of chlorides in the blood, which form such a large percentage of the whole saline constituents, have been estimated by titrating the serum with standard silver nitrate solution, both before and after hypertonic infusions. The results are most instructive, for in the worst cases of cholera not only did the blood show no concentration of the salts, although two thirds of the fluid had been lost, but the salts were actually lower than normal, only from 0.6 to 0.7 per cent having been repeatedly found (against nearly 1 per cent in Bengalis, as shown by Captain McCay, I.M.S.) and in some of them the blood was actually commencing to hemolyse. Yet immediately after the hypertonic injections, which had raised the salts contained materially, the serum was quite clear and the hemolysis had been checked. (These data suggest that hypertonic infusions might be of value in

blackwater fever) Once more, in all but one old man of seventy, the cases which proved fatal in the collapse stage owing to recurrence of the diarrhoea after intravenous injections, were those in which the salts contained were found not to have been raised up to 1 per cent expressed as chlorides, while those in which this point or a higher one was reached recovered from the collapse, the copious watery stools not having recurred as a rule. Occasionally it was necessary to repeat the injection on the following day, but this measure was much less often required than when normal salines were being used.

These data appear to show that there is also a relationship between the degree of loss of salts from the blood and the severity of cholera, the rice water stools containing commonly about 0.5 per cent of chlorides, as was indeed pointed out many years ago by Edmund Parkes. The importance of raising the salts contained in the blood at the same time that the lost fluid is replaced, thus becomes obvious, and the remarkable results obtained by the use of hypertonic solutions are easily understood.

The quantity of fluid required—By means of the hæmatocrite observations both before and after intravenous injections of given quantities of blood fluid, important data have been obtained regarding the amounts necessary to dilute the concentrated blood to the normal or a little beyond that point to allow a margin for supplying the drained tissues and for some degree of further loss by the damaged bowel. Briefly it may be said that three pints constitute the minimum, while as a rule, as much as four pints will be required for the purpose. In very rare cases even larger quantities fail to raise the blood pressure anywhere near the normal, but here marked vaso motor paralysis must be present, and such cases have proved fatal. Four pints, therefore, may be taken as the average amount to be used.

Results of the hypertonic injections in cholera—During 1908, including all cases admitted in a moribund state and those dying of complications, there have been 66 deaths among the 188 cases treated, or a mortality of only 36.17 per cent. The first 12 cases were admitted before the hypertonic treatment was begun, and excluding these there remain 176 cases treated after the new method was adopted, with 59 deaths or 33.5 per cent. This figure is but little more than one half the rate before infusion was frequently used, although in epidemic years like 1908 the mortality is usually exceptionally high. Without present experience we think the mortality should not be over 25 to 30 per cent and in the first 72 cases treated after the adoption of hypertonic solutions the death rate was actually only 27.8 per cent. In the light of our present knowledge we consider that 2 drachms of sodium chloride and 3 grains of calcium chloride to the pint constitute the best strength, this is equivalent to 1.35 per cent and has a specific gravity of 1.006.

The relationship of late uræmic complication in cholera to persistent low blood pressure—Now that so many very severe cases of cholera are tided over the dangerous collapse stage by hypertonic infusions, the commonly occurring late uræmic complication due to continued suppression of urine has become doubly important. That the strong salt solutions used do not increase the danger of uræmia is clear from the fact that during 1908 this complication proved fatal in only 12.8 per cent of the total admissions, against 13.2 per cent in 1907 when infusions were seldom carried out and normal salines were used. *Post mortem* perfusions through the renal circulation in the case of both healthy kidneys and those of fatal cholera uræmia, have shown that whereas a pressure of 20 to 30 mm suffices to run a good stream of saline solution through the former, no less than 90 to 100 mm are necessary in the case of the latter. The blood pressure has, therefore, been carefully watched day by day in a number of cholera cases with the following significant results.

Uræmia occurs mainly in two classes of patients, firstly, those admitted very early with extremely severe attacks who were tided over the collapse stage by infusion, but developed uræmia several days later, secondly, in those admitted very late, as for instance over two days after the onset of the disease, generally in an uræmic condition, infusion not having been used. Since the hypertonic solutions were introduced, 63 per cent of the total cases were infused, and 37 not, the former including all the severe cases with the exception of a very few which died before the measure could be carried out, and the latter all the mild ones and late admissions after the collapse stage was passed. Among the severe infused class the total death rate was 41.7 per cent, which may be contrasted with the figures of Wall who used normal saline solutions in a most thorough manner, repeating the intravenous injections up to as many as six times, with success in one case, yet he had a mortality of a little over 70 per cent of his operations—a sufficiently striking illustration of the value of the strong salt solutions. Of the total deaths in spite of hypertonic saline infusions, 32.6 per cent were from uræmia, but among the mild series not infused no less than 60 per cent of the fatalities were due to failure of establishment of the kidney circulation resulting in uræmic poisoning, although the whole non-infused series were so mild that only 21.5 per cent of them died.

On turning to the blood pressure in those uræmic cases in which it has been noted, it appears that among those who developed it in spite of infusion, the blood pressure at the time of its onset was not above 80 mm in five cases, and not over 90 mm in three more. In the two remaining cases a pressure of 100 mm was recorded shortly after the infusions, two and five days respectively before death from uræmia, but no later note was made. Among cases admitted late with uræmia, the blood pressure has unfortunately been observed only in four, it was 75 in one, 90 in another and 100 each in the other two. It is clear from these data that in the great majority of post choleraic uræmia cases the blood pressure is below that required for perfusing even normal saline solution through the kidneys *post mortem*, after death from this complication, so that the suppression of urine can be very largely explained on mechanical principles limited to the renal circulation. A striking confirmation of these observations was furnished in the case of a patient with a blood pressure under 100 mm who was in an almost completely comatose state with deep stertorous respirations of 42 to the minute and a pulse of 130. Adrenalin and digitalin were repeatedly injected hypodermically with a view to forcing up the blood pressure, and on the following day he had a pressure of 110, was quite conscious and passing urine freely, ultimately making a good recovery. If further observations confirm these results, a rational basis for the efficient treatment of this dreaded complication will be furnished, and a still further lowering of the mortality from cholera may be obtained.

Lastly, it should be mentioned that the double strength salt solution has also been given with advantage by the rectum in mild cases, half a pint being slowly injected high up every two hours. It is also readily absorbed from the subcutaneous tissues if any pulse remains, but it is difficult to give sufficient quantities in this way without serious risk of producing suppuration in the connective tissues, the vitality of which is so greatly lowered in cholera. A simple method of giving the injections is intraperitoneally by means of a cannula devised by the pathologist, and this plan is now being used with promising results, but the number of cases has been too few to enable one to report on it this year. It has the great advantage during epidemic periods of being more simple and rapid than intravenous injections. The intravenous infusions in the vast majority of the cholera cases treated this year were carried out by Captain Mackelvie, M.R.S., to whose devoted work the good results obtained were due.

(2) A NOTE ON CASES OF EXTENSIVE ATHEROMA AND DILATATION OF THE PULMONARY ARTERY, WITH OUT VALVULAR LESION, PRODUCING FATAL CARDIAC DISEASE

For a number of years past this remarkable condition has been known to the pathologist of the Medical College Hospital, while during the year under review it was correctly diagnosed during life, in the wards, it is believed for the first time, so some account of it may be interesting, as it is by no means very rare in Calcutta, no less than four cases having been met with in 1908. As a full description of all the cases recorded in the *post mortem* records up to March 1908, together with such clinical histories as are available, have been published recently in the *Quarterly Journal of Medicine* Vol. II, page 1, the more important features have been embodied in the accompanying table. A brief analysis of this, together with the description of two recent typical cases, will most readily convey a general idea of the affection and enable other clinicians to be on the look out for its occurrence.

A case of pulmonary atheroma correctly diagnosed during life—A Hindu male, aged 23 years, was first admitted to hospital under Lieutenant Colonel Harris on February 28th, 1907, for mitral disease. He gave a history of slight evening rises of temperature beginning nine months ago, followed after two months with palpitation and dyspnoea on slight exertion and swelling of the abdomen with dropsy which spread all over the body, including the face, and persisted up to the date of his admission. The pulse rate was only 54 per minute, and the beat was regular and of low tension. The apex beat was but slightly to the left of the normal position, but epigastric pulsation was well marked and a thrill could be felt in the third left space, conducted towards the apex. There was a systolic murmur at the apex and a marked pulmonary regurgitant bruit, with sometimes a pulmonary systolic murmur in addition. He improved remarkably under cardiac tonics and diuretics. The

normal, but a double murmur was also heard at the apex. The pulse was slow and regular but small. Colonel Harris considered the case to be one of congenital stenosis of the pulmonary artery complicated with mitral disease on account of the apical murmurs. At this time a *post mortem* on case 8 of the table showed pulmonary atheroma and dilatation of the pulmonary artery, with such an amount of enlargement of the right ventricle as to cause it to form the apex of the heart and thus account for the double murmur being conducted thither without any mitral disease being present. The patient grew steadily worse and died on the 28th February. Special permission to perform a *post mortem* examination was obtained from the relatives with the following instructive result.

The abdominal cavity contained nearly two pints of fluid. The pericardium was greatly distended with 24oz of clear dropsical fluid, but was free from signs of inflammation. The whole anterior surface of the heart was formed by the right auricle and ventricle, the apex of the heart was also formed by the right ventricle. The left ventricle did not touch the chest wall. All the cardiac valves were healthy, although the pulmonary cusps were slightly thickened and the corresponding orifice slightly incompetent to the water test, owing to a great dilatation of the pulmonary artery. Both the right cavities were extremely hypertrophied and dilated, the ventricle measuring half an inch in thickness, that is, about the same as the left ventricle. The main trunk of the pulmonary artery showed only a little atheroma at the bifurcation, but its branches in the lungs were greatly dilated throughout and showed numerous yellow patches of atheroma down to the finest vessels which could be slit up with a pair of pointed scissors. The arch of the aorta showed only a few small patches of atheroma such as are met with *post mortem* in a large number of subjects in India. The coronary vein at its entrance into the right auricle was so dilated as to admit the first phalanx of the little finger, accounting for the dropsical condition of the

TABLE OF CASES OF PULMONARY ATHEROMA

Number	Case	Sex	Age	Clin. Diag.	Weight of Heart—Oz.	Anasarca	Fluid in Peritoneum	Pleura	Pericardium	Pulmonary Artery	Aorta	Right Ventricle
1	H	F	14	Mitral regurgitation	15		—	Some	6	Much dilated, atheromatous		Hypertrophied and dilated
2	H	F	23	Childbirth	10½	Slight ankles	—		1	Very atheromatous		Hypertrophied
3	H	M	32	?	12½		?	Nil	5	Very dilated, atheromatous		Hypertrophied and dilated
4	H	F	12	Mitral constriction	7½	General	144	21	15	Arteritis and degeneration	Fairly normal	Hypertrophied and dilated
5	H	F	36	Mitral regurgitation	16½	Marked all over	117	?	1	Markedly atheromatous	Very slight	Hypertrophied and dilated
6	H	F	35	Mitral regurgitation	13½	Marked	32	6	4	Dilated and atheromatous	Markedly dilated	Hypertrophied and dilated
7	M	M	12	Mitral regurgitation	15	Extreme	160	Some	13	Dilated and atheromatous	Slight	Much hypertrophied
8	H	M	20	Mitral	8½	Do	80	22	3	Dilated and atheromatous	Do	Much hypertrophied
9	M	M	23	Pulmonary Atheroma		General	40	Some adhesions	24	Dilated and atheromatous	Do	Much hypertrophied
10	H	F	26	Bright's	11	Do	100		8	Dilated and atheromatous	Normal	Much hypertrophied

dropsy disappeared by the 11th March and the patient left hospital quite free from symptoms on the 17th April. Congenital disease of the pulmonary artery was diagnosed. On the 14th January 1908 the patient was readmitted with very marked general oedema and suffering from cyanosis and dyspnoea. At this time there was a well marked presystolic thrill in the third left space, also present to a less extent at the apex, with a loud double pulmonary murmur. The aortic sounds were

pericardium by back pressure in these cardiac veins. Thus the diagnosis made during life was fully verified *post mortem*.

Pulmonary atheroma with marked dropsy simulating Bright's disease—A Hindu female mill hand was admitted for Bright's disease under Lieutenant Colonel Lukis on the 27th July 1908, with a history of fever three months before followed with oedema of the feet, legs and eyelids and later a swelling of the abdomen,

together with a constant dry cough and a difficulty in breathing. On admission the face and eyelids were swollen and puffy, the hands and legs oedematous, and the abdominal cavity contained free fluid. The urine was scanty and high coloured, but free from albumen. From 15 to 24 ounces were passed daily. The heart sounds were normal, but palpitation was complained of. The lungs were normal but respiration was quick. The patient died a few days after admission and at the *post mortem* the following conditions were noted. The peritoneal cavity contained 100 oz of clear fluid, and the pericardium was distended by 9 oz. The right ventricle formed both the apex and all the anterior surface of the heart, which weighed 11 oz (normal for Bengalis being about 7 oz). Both the right auricle and the right ventricle were much dilated and hypertrophied, the latter measuring $\frac{1}{4}$ ths of an inch in thickness. The left cavities and all the valves were healthy, and the aorta was free from atheroma throughout. The pulmonary artery was moderately dilated, and showed numerous small patches of atheroma of a yellow colour from its bifurcation to the small branches, but the main trunk was healthy except for dilatation. The lungs were oedematous, but there was no emphysema or disease of the bronchi. The kidneys were congested but otherwise healthy. The *post mortem* appearances were characteristic, but there were no cardiac signs by which the affection could be recognised during life. General dropsy, including that of the face, is very commonly met with in pulmonary atheroma, and should lead to the possibility of its presence being borne in mind.

In addition to cases 8 to 10 of extensive pulmonary atheroma producing fatal cardiac disease without any valvular lesions being present, the same condition was met with in a Mahomedan male, aged 24 years, under the care of Lieutenant Colonel Harris, complicating mitral and tricuspid stenosis of a marked degree. Hydropericardium to the extent of 9 oz was found *post mortem*, together with great hypertrophy of the right ventricle causing it to form the apex of the organ. General dropsy, including that of the face was again present, and the coronary sinus was also much larger than normal. Yet another case with similar heart changes secondary to dilatation of the pulmonary arteries and hydropericardium to the extent of 18 oz, was found *post mortem* in a Mahomedan male, aged 20 years, under the care of Lieut Colonel Lukis for mitral regurgitation but here the actual atheromatous changes were less marked. It is clear, then, that these cases constitute a by no means very rare type of heart disease in Calcutta which is exceedingly difficult to diagnose during life. A careful analysis of the whole series in the table shows that the following are the most constant features of the affection, in discussing which it will be most convenient to work back from the definite pathological data to the more difficult clinical features.

General dropsy.—In all except cases dying in a comparatively early stage from some sudden strain such as child birth in No. 2, there is very marked general oedema of the subcutaneous tissues commonly including the face. The abdominal cavity usually contains several pints of fluid, while smaller amounts are found in the pleural cavities if they are not obliterated by old adhesions. Yet more striking is the great frequency of hydropericardium, from 3 to 24 oz having been found in all except in 2 early cases of acute heart failure. In a case recorded in the museum catalogue by Dr McConnell, in which the pulmonary valves were also involved, nearly two pints of fluid were met with in the pericardium. This local dropsy is associated with great dilatation of the coronary sinus, doubtless secondary to tricuspid dilatation which results early from dilatation of the right ventricle.

Hypertrophy and dilatation of the right heart.—Once this condition has been seen, the first glance at the heart itself suffices to raise a strong suspicion of its presence. The right cavities are so greatly enlarged that they

form the whole of the anterior surface of the organ, while the right ventricle extends beyond the left so as to constitute the apex of the organ, the left ventricle usually not coming in contact with the chest wall. It is this striking feature which causes these cases to be almost invariably taken during life for mitral disease, for any murmurs generated in the right ventricle and conducted to its apex, are heard at the site of the impulse of the heart and are very naturally referred to the left ventricular valves. On opening the organ, there is seen an extraordinary degree of hypertrophy of the right side accompanied with considerable dilatation, the latter doubtless being largely compensatory in nature to enable the circulation to be maintained through the greatly dilated pulmonary arteries. The wall of the right ventricle is commonly as thick as that of the left, namely, about half an inch, while the right auricle is usually markedly hypertrophied as well as dilated, its cavity having measured 6 inches across in case 9. Yet both the tricuspid and pulmonary valves are quite healthy in appearance as a rule, although the latter may be slightly thickened from the strain it has been subjected to. The left cavities are found to be normal, and the valves competent and quite healthy, so that it is clear that the state of the right cavities is not secondary to mitral or aortic disease, and the cause must be sought for in the lungs.

Lungs.—On first meeting with this disease in case 6 of the table, after noting the state of the heart, I turned to the lungs expecting to find chronic bronchitis and emphysema as the primary cause of the cardiac changes. On cutting across one lung, greatly dilated tuors were seen which were at first sight taken for a condition of bronchiectasis, but which proved on closer examination to be enormously dilated and very atheromatous arteries of the pulmonary system, through which a finger could easily be passed far into the lungs. On closely examining the main pulmonary trunk it is always found to be dilated and usually markedly so, with as a rule some raised yellow patches of atheroma within it. In several cases, however, the main trunk did not show any naked eye evidence of degenerative changes, and it was only on slitting up the vessels within the lungs that this disease was found to extend throughout the pulmonary arteries as far as they could be laid open, thus accounting for the extraordinary affection of the right cavities without valvular lesions. In some cases actual incompetence of the pulmonary valve owing to the dilatation of the main trunk was demonstrated by the water test, while it must have been much more marked during life when the pulmonary artery was distended at each beat of the extremely hypertrophied right ventricle. No evidence of chronic bronchitis and emphysema was found in any cases to account for the cardiac changes which thus appear to have been produced solely by the dilatation and atheroma of the pulmonary arteries. Microscopical sections of both large and small vessel walls showed precisely similar lesions to those produced by atheroma in the aorta and other systemic arteries. (Photos of the heart and drawings of the microscopical changes in the pulmonary arteries have been published in the *Quarterly Journal of Medicine*, Vol II, page 1, Oct 1908.)

Clinical features of the disease.—In the absence of all valvular disease, the insidious dilatation and atheroma of the pulmonary arteries produces a steadily increasing strain on the right ventricle and a consequent hypertrophy of its muscular wall. As long as this compensation is adequate, no symptoms are likely to occur, but any sudden strain may bring about a rapidly fatal acute dilatation, as in two women who died in the Eden Hospital of heart failure shortly after child birth, without any signs by which the extensive pulmonary atheroma found *post mortem* could have been suspected during life. In all but two of the remaining cases the patients were admitted for heart disease which was diagnosed as mitral in origin for the reasons mentioned above regarding the

right ventricle forming the apex of the heart. In those patients who gave a clear history, difficulty of breathing was an early symptom, accompanied with a rapidly advancing dropsy affecting the subcutaneous tissues all over the body, including the face and the serous cavities. This is clearly due to dilatation of the hypertrophied right ventricle producing tricuspid dilatation, the liver presenting a well marked enlargement and *post mortem* a typical nutmeg condition. The great difficulty lies in excluding valvular disease of the left mitral valve as the primary cause of all the trouble, for the normal character of the aortic sounds and the absence of enlargement of the left ventricle and of an aortic pulse enable affections of the aortic valve to be put out of count. Only in case 9 was there very definite evidence of organic, as opposed to hæmic, murmurs at the pulmonary area. The pulse may afford some help for it is commonly small and regular and thus not that of advanced mitral regurgitation, while the characteristic presystolic murmur with short first sound and absence of second sound at the apex, is against mitral stenosis. The great hypertrophy of the right ventricle may reveal itself in well marked epigastric pulsation and enlargement of the area of cardiac dulness to the right of the middle line, while the apex beat is usually found to be inside the middle line or at any rate not to the left of it or lower than normal as in many cases of primary disease of the left heart. The absence of history of prolonged chronic bronchitis and of signs of emphysema exclude that common cause of right sided dilatation of the heart and may thus help to raise a suspicion of pulmonary atheroma being the primary condition present. Lastly, these cases, except when ending in acute dilatation, terminate in a large proportion of cases in a rapid hydropericardium, which does not yet appear to have been recognised during life, although its relief by aspiration must afford the only hope of saving the patient. That under favourable conditions the dilatation of the right ventricle can be recovered from after extreme dropsy has set in, is clear from the first case narrated, in which the patient recovered and remained well for some months, until he started manual labour again and brought on a fatal recurrence of the dilatation. Much relief might, therefore, be obtained from paracentesis of the pericardium if the necessity were recognised in time.

The incidence of the disease remains to be mentioned. It is remarkable that no less than six out of the eleven cases were in females although they form but one fourth of the admissions. Again, all but three were under thirty years of age, while the oldest was but 36, and four were actually not over 20. The great majority were thus far below the period of general arterial degeneration even in natives of India, when syphilis is the common cause of such changes. In several of the patients either a history of syphilis was recorded or some lesions of this disease were found *post mortem*, such as scars of gummata in the liver or cirrhosis of the spleen, so that syphilis is the most common cause of the affection.

(3) CACHEXIAL FEVER

Total number of cases analysed = 58

Age distribution —

1 to 10 years	4
11 to 20 "	31
21 to 30 "	17
31 to 40 "	4
41 to 50 "	2
	58

Distribution according to sex —

Males	48
Females	10
	58

Distribution according to race —

Hindu	31
Mahomedan	13
Eurasian	8
Indian Christian	6
	58

Distribution according to residence —

Calcutta and suburbs	38
24 Pargunnahs	3
Hooghly	2
Burdwan	3
Birbhum	1
Rajshahi	2
Nadia	2
Jessore	1
Khulna	1
Barisal	1
Patna	2
Fabna	1
Bilaspore	1
	58

Duration of illness, previous to admission —

6 months	23
1 year	10
1½ "	2
2 years	2
3 & above	10
Unknown	11
	58

Notes on the Atoxyl treatment of Cachexial Fever — Atoxyl is the Meta Arsenic Anilide, with the formula $C_6H_5NHASO_2$, and it contains 37.67 % of Arsenic. There are three other similar drugs in the market, belonging to a group of so called "aryl-arsenates," namely, Orsudan, Kharsin and Soamin, the last being the sodium para amino phenyl arsenate. These are said to be less toxic than atoxyl and they contain 25.4, 23.7 and 22.8 % of arsenic respectively. They are all white powders with a saline taste and varying in their solubility, but being more soluble in warm than in cold water. Solutions should be freshly prepared before use.

Ehrlich's experiments — Ehrlich found that 1/300th of a gramme was the largest dose that a mouse weighing 30 grms. could take of this drug with impunity. He also found that a dose equivalent to 1/300th of the body-weight of a mouse rendered the blood of such an animal free from trypanosomes for 14 days.

In 1905 atoxyl was first used in the treatment of sleeping sickness and with good results. Koch, in his experience of the drug, found that patients treated with injections of it were kept free from trypanosomes for as many as ten months or indeed completely cured if treatment was commenced early enough. Administration by the mouth was found to be unsatisfactory as the substance underwent changes in the stomach. Noticing the morphological resemblances between the parasites of the African and Indian trypanosomic diseases in human beings, it was resolved to try the effects of atoxyl in the latter. In the first few cases Arrhenal (i.e., Arsinyl or the disodium methylarsenate) was tried, followed up with atoxyl, but not with satisfactory results. The idea was that, owing to the incomplete destruction of the parasites by atoxyl alone, the virulence of the remaining parasites was, perhaps increased or, at any rate, remained unaltered, therefore it was necessary to combine some other drug with atoxyl, so that those of the parasites which resisted the one drug should fall a ready prey to the other. The liquor hydrargyri perchloridid was employed along with atoxyl for a similar reason, presuming that there may be something akin between the Leishman Donovan body and the organism responsible for syphilis in which

disease the mercurial preparation does so much good. The results of treatment based on this plan are illustrated in the cases of which notes are given below.

CASE I—Mrs Bryant, a European female, 35 years of age, was admitted to hospital on the 23rd April 1907, for the treatment of fever. She was a resident of Calcutta.

Family history—Father died of heart disease, mother living and healthy. A brother suffers from a type of fever similar to what she has. She has had three children, two of whom are living and healthy and one died of inflammation of the bowels.

Previous history—In August 1906 she was treated as an inpatient at the General Hospital for what she calls typhoid fever. She was there till the 15th October. In November she was readmitted to the same hospital for what was then diagnosed as malarial fever. During her first stay in hospital she is said to have had a temperature ranging between 100° and 101° . During her second stay she got higher rises and rapid falls in an irregular manner. She was in hospital till the 8th December 1906. About the beginning of January 1907 she got a return of the fever and an abscess over the spot on the arm where the quinine had been injected subcutaneously. For this she attended the outdoor department of the Medical College Hospital and subsequently entered this hospital. During this period in hospital the spleen was found to be enlarged. She left the hospital in March apparently cured.

Present illness—The present attack came on on the 13th April and she was admitted to hospital on the 23rd complaining of a pain all over the body, a headache, and fever of a temperature of 102° , with epistaxis and sweats twice daily when the fever left.

Alimentary system—Appetite poor, great thirst, burning sensation in throat and stomach. Liver slightly enlarged.

Hæmopoietic system—Spleen enlarged and tender and extending to the middle line. The measurements were: Notch of spleen to umbilicus = $\frac{1}{2}$ inch, notch of spleen to ensiform cartilage = $2\frac{1}{2}$ inches, extent below costal arch in mammary line = $1\frac{1}{2}$ inches, extent below costal arch in mid-axillary line = $3\frac{1}{2}$ inches.

Reproductive system—Periods have been irregular since the beginning of the illness.

29th April—Spleen puncture done and L. D. bodies found. From admission up to date the patient has been having irregular rises of temperature with a tendency to double rise.

1st May—Subcutaneous injection given of atoxyl gr vii dissolved in m xv of water. Patient very low from this day up to the 10th instant, apparently the reaction was very violent. All other medicines were stopped during this time save stimulant mixture and brandy, and rectal injections of saline solution. Patient was occasionally delirious at nights. Improvement was slow.

14th May—A second injection of atoxyl given, gr iv. The irregular rises of temperature have not the same high range as before.

19th May—An ulcer appeared on the left cheek opposite the upper molar, probably in connection with a carious tooth, the tooth was drawn, trichloroacetic acid solution was applied and the ulcer healed up gradually. From this time onwards the patient made an uninterrupted recovery and she took her discharge from hospital on the 26th May 1907. At the time of her discharge the condition of the patient left nothing to be desired, the anæmic, sallow appearance had gone and the spleen could scarcely be felt below the ribs. The blood count was as follows—3,502,000 r b c, 5,600 w b c, Hb value 65%, polynuclear w b c 66%, small mononuclears 25%, large mononuclears 8%. The patient was advised to stay a little longer in hospital but she preferred to have a change. Four months later she returned, very low in condition, with a large spleen and a fairly large liver. The patient continued low, developed diarrhoea and finally succumbed to her troubles. Browning's

theory is that if the dose of atoxyl be low an atoxyl resisting strain develops and should a relapse take place, nothing can stay the progress of the disease.

CASE II—Nazir Khan, a Mahomedan boy, 8 years of age, was admitted to the Medical College Hospital on 1st August 1907. He had at the time a very large spleen with marked jaundice and high fever. The patient was very emaciated, with his thin chest walls and ribs standing out in marked contrast to the prominent abdomen through the thin walls of which the outline of the enlarged spleen could easily be felt. He stayed in the hospital for a few days only during which time he was treated with the ordinary spleen mixture. The benefit was slight and so a splenic puncture was made and the blood from this source was examined with the result that innumerable L. D. bodies were discovered. The patient was however very impatient and he took his discharge from hospital at this time.

He was readmitted on the 17th January 1908 very much worse than before, emaciated, with signs of pulmonary disease, and suffering from fever. He had come from Barrackpore. His spleen and liver were enlarged and he had a tinge of jaundice.

Alimentary system—Appetite bad, thirst present, bowels constipated. The liver reaches to the level of the umbilicus.

Hæmopoietic system—The spleen is enlarged and has the following measurements: notch to umbilicus = 2 inches, notch to ensiform cartilage = $3\frac{1}{2}$ inches, lower border below costal arch in mammary line = $4\frac{1}{2}$ inches, in mid-axillary line = $2\frac{1}{2}$ inches, anterior border from the middle line on the right side = $1\frac{1}{2}$. Spleen very hard and somewhat tender on pressure. Examination of the blood gave the following results: 4,125,000 r b c, 5,003 w b c, 62% p w b c, 28% small mononuclears, 10% large mononuclears.

Circulatory system—Apex beat visible at the 5th interspace and somewhat diffuse. No murmurs. Pulmonary second sound accentuated. Pulse soft, 132 per minute.

Respiratory system—Incessant cough, with some mucopurulent expectoration. Rhonchi and râles all over the right side of the chest, ribs and sternum prominent.

Urinary system—Urine examination showed colour straw, specific gravity 1020, sugar and albumen nil, phosphates present in traces.

An expectorant mixture was first given as the lung condition was urgent, along with this a bark and ammonia mixture was administered. The cough subsided but irregular rises of temperature continued. On the 9th February the patient had his first dose of atoxyl, gr v. The second dose was given on the 19th February. No great reaction was noticed after these two injections and the patient's general condition improved considerably. The third injection was given on the 3rd March, and the 4th and 5th on the 13th and 23rd March respectively. On the 29th the patient was put on half drachm doses of the liquor hydrargyri perchloridi thrice daily. The atoxyl injections were continued in 5 grain doses at intervals of three days. Improvement continued steadily, the size of the spleen gradually diminished as also that of the liver.

CASE III—Haridas, a Hindu male, 25 years of age, was admitted to hospital on the 13th June 1908 for the treatment of fever and enlarged spleen.

Family history—Father died of paralysis, and one of his brothers of enlarged spleen and fever.

Present illness—About three years ago the patient had an attack of fever ushered in with a rigor. Three months prior to his admission to hospital he had a repetition of the attack followed this time by a burning sensation of the hands and feet. From that period onwards fever has recurred off and on up to the present time.

On admission the patient was found to be anæmic and rather emaciated, with a pale, sallow complexion. Tongue coated, mouth bitter, appetite fair, occasional

gripping pains in the abdomen, bowels irregular, internal piles present. Spleen enlarged, its lower edge on a level with the umbilicus, $2\frac{1}{2}$ inches from the costal arch in the mammary line, and the notch being 3 inches from the umbilicus and $4\frac{1}{2}$ inches from the ensiform appendix. Spleen tender on palpation. Liver slightly enlarged. Heart sounds normal, pulse regular but feeble. Blood examination showed the following results: 2,000,000 r b c, 5,000 w b c, Hb value 55%, p w b c 56%, small mononuclears 29%, large mononuclears 15%. Spleen puncture revealed the presence of L D bodies in fair numbers.

The patient was placed on the atoxyl treatment on the 15th June and mercury was given too, with the result that a cure was practically effected by the 17th August. At the time of his discharge the patient was getting no fever, his spleen was hardly palpable below the ribs and the blood count showed great improvement, viz., 4,500,000 r b c, 6,250 w b c and Hb value 85%.

CASE IV—Nathuni Miah, a Mahomedan male, 40 years of age, by occupation a servant, was admitted to hospital on the 14th July 1908 for the treatment of enlarged spleen and dropsy. His home was in Behar.

Family history—Nothing of importance in family history.

Present illness—Four months ago he had had an attack of fever ushered in with a rigor. It lasted off and on for two months, and was followed up with a swelling of the abdomen and of the legs. Previous to his coming, to this hospital for treatment, he had been treated by some medical men at Gaya.

On admission the patient was found to be very anaemic and emaciated. Liver and spleen enlarged and tender on palpation. The former organ was also found to be enlarged upwards and to extend below to 4" below the ensiform cartilage in the middle line, 4" below the costal arch in the mammary line and 5" below it in the midaxillary line. The spleen extended upwards to the upper border of the 7th rib in the mammary line and the upper border of the 8th rib in the midaxillary line. From ensiform cartilage to notch of spleen measured $3\frac{1}{2}$ ", from umbilicus to notch $1\frac{1}{2}$ " downwards below costal arch in middle line of axilla $1\frac{1}{2}$ ", and in mammary line $4\frac{1}{2}$ ". L D bodies were found on making a spleen puncture. The blood was examined in the ordinary way from time to time as well as on admission and the results of these examinations are shown in the accompanying chart. Atoxyl and the liquor hydrargyri perchloridi were administered with great benefit. The spleen diminished considerably in size though the liver remained much the same. Seven grains of atoxyl were administered subcutaneously every third day and a drachm of the mercurial preparation was given internally three times a day. For the cedema of the legs digitalis and the tincture of apocynum were used with very good results. On the 19th August a liver puncture was made and L D bodies found in the smear. The dose of atoxyl was thenceforth increased to gr vii every other day.

CASE V—Sitath Dass, a Hindu male, 28 years of age, was admitted to hospital on the 31st July 1908, for the treatment of enlarged spleen and fever.

Family history—Father living, mother died of phthisis.

Previous history—The patient, who is an inhabitant of Calcutta, says that the enlargement of spleen and the fever had commenced about a year ago, and that he had developed a cough only a week previous to his admission to hospital. The first attack of fever lasted about a month or so, and was followed by repeated attacks of a similar kind.

On admission the liver and spleen were both found enlarged. The upper limit of the liver dulness extended to the 7th chondrosternal junction in the right parasternal line, to the upper border of the 6th rib in the mammary line, and to the upper border of the 8th rib in the midaxillary line. Below the liver extended to $1\frac{1}{2}$ " from the costal arch in the midaxillary line, 3"

from it in the mammary line, and $2\frac{1}{2}$ " from it in the right parasternal line. The spleen extended to a little beyond the middle line on the right, the upper limit of splenic dulness extended to a line beginning at the upper border of the 9th rib in the midaxillary line and touching the upper border of the 7th rib in the mammary line. To the right of this the splenic dulness merged with that of the liver. The lower border of the spleen extended to about 2" above the interspinous line in the mesial plane, $1\frac{1}{2}$ " above the same line in the mid poutpart plane, and $\frac{1}{2}$ " above the iliac crest in the midaxillary line. L D bodies were found in the liver and spleen smears. Examination of the blood gave the following results: r b c 3,750,000, w b c 6,000, Hb 58%, p w b c 76%, large mononuclears 12%, small mononuclears 12%. The condition of the blood at the time of admission and later in the course of the disease is well shown in the accompanying chart.

Respiratory system—Cough present, vocal fremitus increased on the right side, crepitations and tubular breathing heard over both apices. No T B found in the sputum.

Under treatment with atoxyl and the liquor hydrargyri perchloridi the general condition of the patient greatly improved, the spleen and liver diminished in size and the condition of the blood became better. It is interesting to note that when the patient came to hospital there were distinct physical signs of lung trouble present, these disappeared entirely under the treatment employed. The question naturally suggests itself,—Can it be that atoxyl has some beneficial influence on pulmonary tubercular processes as well? This appears to require further investigation.

CASE VI—Golam Mahomed, a Mahomedan male, 22 years of age, a resident of Navabpur in the district of Hughly, and by occupation a cultivator, was admitted to hospital for the treatment of enlarged spleen and fever from which he had suffered for a year and a half. On his first admission to hospital he remained only a few days and then went home. On that occasion his leucocytic count was 2,300. He was given two injections of anti-staphylococcal serum at that time, but he did not stay long enough at hospital to allow of the results being observed. He, however, returned three months later very much worse as to his condition.

On admission he was found to be very anaemic and somewhat emaciated. There was the mark of a large blister on his epigastrium. The abdomen was prominent and dull on percussion except for an area of resonance below the hepatic dulness. The area of splenic dulness was as follows: Upwards it extended from the upper border of the 8th rib in the midaxillary line and that of the 7th rib in the mammary line to $1\frac{1}{2}$ " of the xiphoid cartilage reaching to 7" below the right nipple in the mammary line. The right border of the spleen extended a little beyond the right nipple line and was $3\frac{1}{2}$ " from the umbilicus in the transverse umbilical line. The lower border of the organ reached to $\frac{1}{2}$ " above the interspinous line in the right mid poutpart plane, 1" above it in the left mid poutpart plane and 2" below the umbilicus in the mesial plane. The liver was normal in size. On making a spleen puncture many L D bodies were discovered in the smear. The condition of the blood on admission and after treatment are shown in the accompanying chart.

An interesting point in the case was that although the condition of the patient generally and of his blood in particular was very much improved by the treatment adopted, yet the size of the spleen was not very much diminished. It may be that the spleen having become cirrhotic, its size no longer afforded an index of the benefits derived from the treatment on the system in general.

(4) CALMETTE'S OPHTHALMO REACTION

The following are the notes on a series of clinical experiments made with a view to testing the diagnostic and prognostic value of the ophthalmic reaction. It is

SPECIAL REPORT OF THE MEDICAL COLLEGE HOSPITAL FOR 1908

By LIEUT COL C P LUKIS, MD, FRCS, IMS,
Principal, Medical College, Calcutta

CACHEXIAL FEVER
CHART III

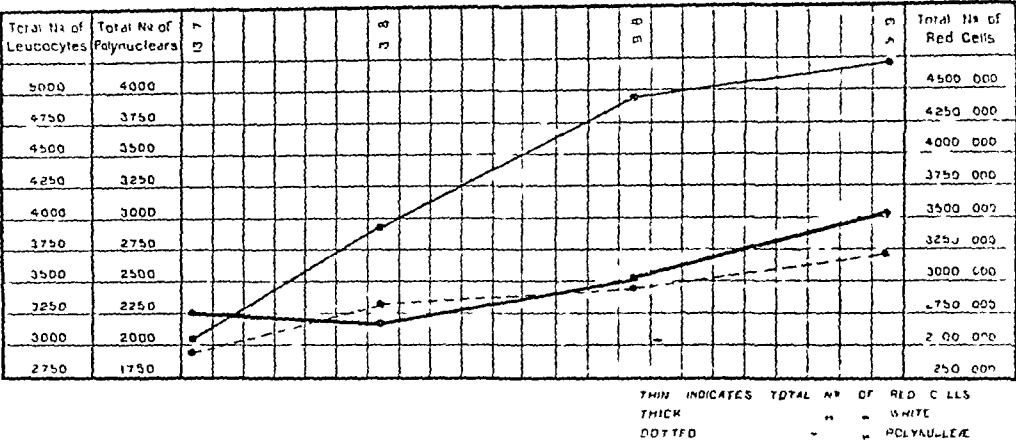


CHART IV

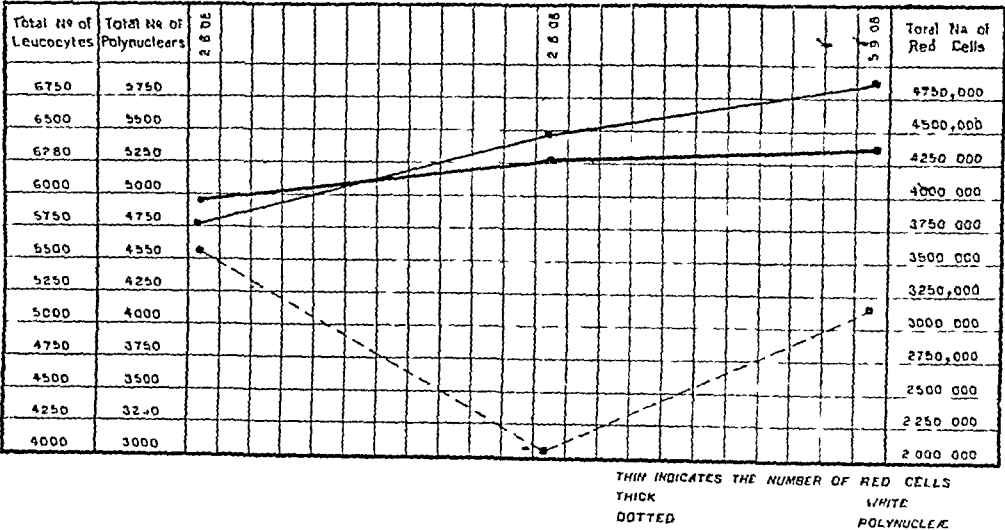
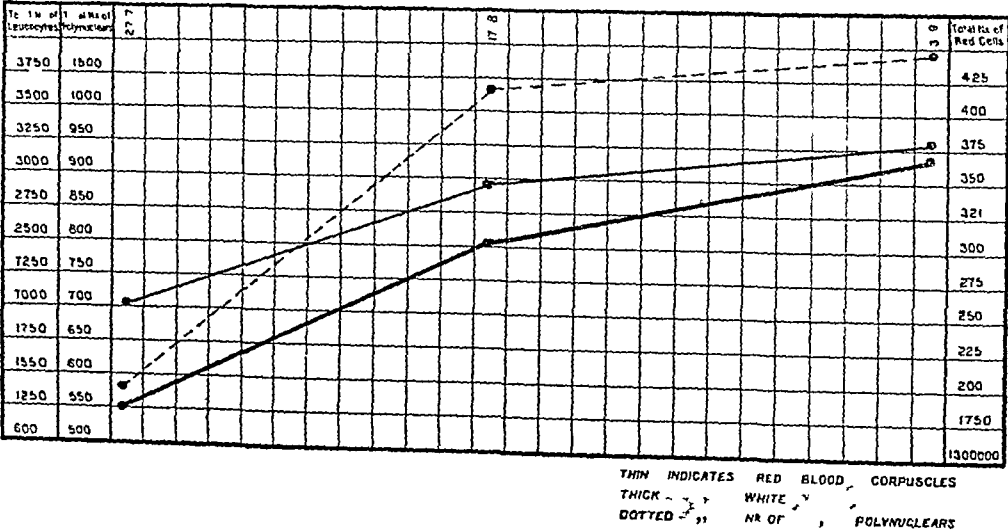


CHART V



suggested that the reaction depends on the albuminous element in the composition of the bacilli, when this reaches the connective tissue after penetrating the conjunctival epithelium it meets, in tuberculous patients, a special body variously described as a lysin or a ferment. By their interaction a new toxic substance is produced. In non tuberculous cases the special body is either absent or is so inactive that the toxic substance is not produced in sufficient quantity to cause any local reaction. On the other hand, in advanced cases, it has been argued, the lysin is not produced as the connective tissue cells are exhausted. Therefore it might be concluded that the test is of no value in advanced cases, but in these cases no confirmatory test is needed for the diagnosis. It is only in the early cases that mistakes are apt to arise in the conclusions formed and that the value of the method is appreciable.

A dried powder has been manufactured by the Pasteur Institute of Lille, whose representative in London is Mr J Black, 16 Water Lane. In making a solution for use 10 drops of distilled water are added to the contents of a single tube of the powder, thus giving a solution 1 % in strength. A drop of the freshly made

are briefly referred to in the annexed table. In addition, the test was applied in the case of 48 other patients of whom 25 were non-tuberculous and 23 were suspicious, i.e., having physical signs pointing to some thing tuberculous but not supported by indisputable testimony.

The conclusions that appear to be justified from the results of the experiments carried out, are—(1) that there is absolutely no danger in employing the test in any suspicious case, (2) that it is well to begin with a 0.5% solution and then to go on to a 1% solution if the former fails to give a reaction, (3) that Calmette's test responds to all forms of tuberculous affection, (4) that certain confirmed but advanced cases fail to answer to this test, (5) that some cases, on the other hand, give a positive reaction when nothing else of a definite nature can be made out clinically at the time distinct clinical evidence of the tuberculous nature of such cases developing later on, and (6) that, except in a very few instances, the positive reaction serves in confirming the diagnosis of tuberculous disease and that for these reasons the test appears to be worth a trial in all doubtful cases.

No	NAME	Age, Sex and Nationality	Nature of case	Signs and symptoms present	Strength of solution used	RESULTS
1	Krista	Hindu, male, 25	Tubercular Laryngitis and P.P.	Rhonchi and rales present over both apices, T.B. in sputum	1%	Marked congestion and epiphoria—within 7 hours of instillation, continued for 24 hours
2	Nemoo	Hindu, male, 30	Tubercular Laryngitis	T.B. in sputum, hoarse voice	5%	Marked congestion and reaction appeared within 24 hours
3	Sheik Abdul	Mahomedan, male, 35	Tubercular Hip	After operation scrapings showed the presence of tubercular process	5%	No reaction
	Sheik Amoo	Mahomedan, male, 39	Tubercular Knee	Scrapings from the knee obtained during operation showed the disease to be tubercular	1%	Gave a very marked reaction
5	Wylli	East India, male, 20	Diarrhoea Tubercular (?)	Cough, crepitations also	5%	Negative
6	Mankumai	Hindu, female, 18	Ascites Tubercular Peritonitis (?)	Doughy abdomen, &c	1%	Positive reaction
7	J B Guandacio	East India, male, 35	Hæmoptysis and P.P.	Signs of Tuberculosis T.B. in sputum	1%	About a fortnight later T.B. were found in the sputum
8	Mathura Prasad	Hindu, male, 32	Pericarditis (Tubercular ?)	Patient had some symptom of pericarditis later on developed pleurisy and died	1%	Positive reaction Patient developed slight cough afterwards and died 2 months after the examination
9	Aam Khelwa	Hindu, male, 12	P.P.	Shewed an advanced condition of the lungs. The eyes were muddy and discolored	1%	Positive reaction
10	Aulen	Chinaman, male, 35	Do	Active process in both lungs—T.B. found	1%	Only a faint reaction
11	Miss Hemicks	East India, female, 22	P.P. (?)	At first no T.B. found later demonstrated	1%	Only a slight reaction
12	Govind	Hindu, male, 25	Phosphatic Diabetes later developed Pleurisy	Pleurisy with effusions with some crepitations—T.B. found in pleuritic fluid	1%	Positive reaction

solution is instilled in the eye over the inner aspect of the everted lower lid. If the reaction occurs, it does so some time between 8 and 13 hours after instillation, and consists in epiphoria, redness and congestion and sometimes smarting. In the first 17 cases tested a 0.5% solution was used. Of these cases 5 were apparently non tuberculous though one of them gave the reaction, 5 were suspicious but gave no reaction, 7 were confirmed cases of which 5 were of pulmonary tuberculosis with T.B. in the sputum, 1 of tuberculous hip joint, 1 of tuberculous knee, only 2 of these 7 cases showed a reaction.

From this time onwards the strength employed was increased to 1%. Fifty confirmed cases of tuberculosis were tested of which a dozen of the most interesting

(5) SCURVY AMONG PATHANS IN CALCUTTA

DURING the year under report a few cases of scurvy occurring among Pathans, were admitted to hospital. A brief review of the notes on these cases may be found of interest.

CASE I—Abdul Akim, 25 years of age, originally an inhabitant of Cabul, was admitted to hospital on the 16th January 1908, suffering from tenderness of the gums and salivation. He had been living in Calcutta for three years and during this time his diet had consisted almost entirely of beef and "chapatis". A month previous to his admission he had noticed a pain in his left knee and, 8 days later, a tenderness of the gums and salivation. On his admission to hospital the patient was found to have swollen and tender gums which

bled freely when pressed. There was some swelling over the 7th and 8th left costo chondral articulations and the parts were acutely tender on pressure. The treatment adopted consisted of rest in bed, and astringent gargle, an iron tonic, and a diet of milk, bread, raw potato juice, onions and lemons. Improvement was rapid and the patient was discharged cured of his troubles, on the 1st February 1908.

CASE II—Monghyr Khan, 20 years of age, had been admitted to hospital on the 6th December 1907. A month previous to his admission he had developed swollen and tender gums which used to bleed freely when pressed. This condition was followed in a day or two with fever and pains in the toes, chest and knees. The diet he had lived on while in Calcutta was similar to that mentioned in the previous case. On admission the patient was found to be very anemic and weak. The red blood corpuscles numbered only 2,000,000 and the hæmoglobin value was 28 per cent. At the time he was suffering from acute pain over the costo chondral articulations, and a distinct crepitus could be elicited over some of these. The gums were still swollen and tender and bled readily, and the teeth were covered with sordes. The patient made an excellent recovery under antiscorbutic treatment, dietetic and medicinal, and left hospital on 1st February 1908.

CASE III—Rahim Khan, 24 years of age, came in on the 14th February 1908 with similar complaints. He had come to Calcutta from Cabul about a year previously and had lived during this time on the usual beef and "chapati" diet. About a month before his admission to hospital he noticed a tenderness over the front of his chest and a spongy condition of his gums, and later on his calves became extremely tender as well. The patient, at the time of his admission, was apparently fairly well nourished, his teeth were black, his gums bled readily on pressure and there was great tenderness over the costo chondral junctions. He improved very much under antiscorbutic treatment and left hospital on the 25th February 1908.

CASE IV—Alikhan, 37 years of age, was admitted on the 22nd May 1908 for the treatment of spongy gums and debility. He had suffered from these conditions for a month or so previously. He was a native of Dera Ghazi Khan and had lived in Calcutta for four years. On admission he was found to be weak, emaciated and depressed in spirits. The gums were swollen and bled readily. Petechial spots were present over the legs and there was a large hæmatoma over each shin. The patient complained of acute pain in the knee joints, worse at night than in the day. The treatment applied consisted in antiscorbutics, an astringent gargle and an iron tonic. Recovery was rapid and the patient left hospital on the 7th June 1908.

CASE V—Hakim Khan, 28 years of age, a cloth merchant, was admitted to hospital on the 31st May 1908, with a history of bleeding from the gums for about a month and a pain over joints. He had been in Calcutta for about two years and had lived during the time on a bread and meat diet. On admission he was found to be very anemic, his teeth were black and his gums swollen and very tender. There was a large hæmatoma on each shin and some swelling over the 8th costo chondral articulation on the right side. The patient improved greatly in hospital and took his discharge on the 10th June 1908. He was re-admitted on the 28th October 1908 with a similar complaint. On this occasion there was constant dribbling of bloody saliva from the mouth. Many petechial spots were present over the lower limbs, the skin over the shins was oedematous and the parts tender on pressure. The chest presented a beaded appearance owing to swellings over the costo chondral junctions which were also exceedingly tender. The coagulation time of the blood was four minutes and the serum was very poor in salts. The patient was treated with an iron tonic, an astringent gargle, and given a diet consisting of fresh fruit, green vegetables and raw meat juice. Improvement was

steady and the man left hospital on the 14th November 1908.

The history of these cases presents points of considerable interest as regards etiology, symptomatology and treatment. The common factors concerned in the causation have to do with race, age, climatic and dietetic conditions chiefly. The patients were all youthful individuals taken from a race of people accustomed to living in a cool climate, who have migrated to the plains and altered their dietaries in the way of omitting to a large extent the fresh and dried fruits they were accustomed to eating in their own country. The result is that in many cases they have developed scorbutic disease which has manifested itself in a very definite manner. There is a remarkable similarity observable in the nature of the symptoms in the various cases recorded. The treatment on the lines mentioned above has left nothing to be desired and recovery was in every case satisfactory and rapid.

(6) A CASE OF CEREBRAL ABSCESS CURED BY OPERATION

J. T., a Hindu boy, a student in a local school, was admitted to hospital on the 17th May 1908, with the following signs and symptoms, (i) Headache, (ii) Nausea and vomiting, (iii) Impaired vision and (iv) Pain in the ears.

Previous history—About three months previously he had an attack of measles which was followed by a pain in both ears, without any discharge. A few days later he developed a headache and noticed a tenderness on the top of his head. He vomited once or twice a day and this was accompanied with nausea, but neither the nausea nor the vomiting had any relation to the taking of food. For six days previous to his admission the patient had been getting febrile attacks and the head aches had become very acute. There was no history of syphilis or of tuberculous disease in the family.

Condition on admission—The boy was very pale. He had a vacant look about the eyes. There was a distinct bulging over the vertex, with some heat of the part. The temperature on admission was 99°F and the pulse was full, bounding and frequent. There was no impairment of motor power, the gait was natural, the knee jerks were present but not exaggerated, and Romberg's sign was absent. The vision was markedly impaired, objects appearing blurred at a distance of one yard. Optic neuritis was present in both eyes. The tympanic membranes were entire though a little sclerosed. There was no tenderness over the mastoid processes. The condition of the patient was normal in respect of the other systems and the urine contained no albumen.

During his stay in hospital the patient suffered very considerably on account of headaches which were not relieved by continuous applications of ice. He also had a daily evening rise of temperature ranging from 102°F to 105°F. On the 15th of June a distinct fluctuation was felt over the tumour on the vertex and there was some oedema of the surrounding parts of the scalp and over the left eye. The case was operated on by Major R. Bird, I.M.S. The skin over the swelling was reflected by means of a curved incision. A small quantity of pus came out and some granulation tissue like material was removed by scraping. This revealed a perforation in the bone. This was enlarged and the *dura mater* incised on the right of the longitudinal sinus. No abscess cavity was detected but some pus came out and some more was removed from the surface of the convolutions. This pus proved sterile on bacteriological examination. Slight paresis of the left upper and lower extremities was observed after the operation and an evening rise of temperature of 102°F. On the 18th June the paresis of the extremities was practically gone. The case was dressed for the first time on this day. There was some sero sanguineous discharge from the wound and an evening rise of 101°F.

On the 20th June the paresis of the limbs had passed off altogether. The dimness of vision was no longer present. There was some discharge from the wound.

A week later an examination of the eyes was made and the optic neuritis was found to be diminishing. The congestion was less though the discs were still pink and the edges a little blurred.

On the 2nd July the patient complained of a severe headache, the temperature rose 101°F and there was some foul discharge from the wound. The wound was thoroughly cleaned and the temperature came down by 5th.

Since that day the patient made an uninterrupted recovery save for occasional attacks of headache which always yielded to mild aperients. An examination of the eyes made on the 18th July showed them to be free from optic neuritis and the vision at this time was 6/6. The wound had practically healed by the 20th August and the patient left hospital on the 28th of that month. He was last seen in January 1909 and was then keeping good health and attending school as usual.

The interesting points about this case are (1) the entire absence of any history of definite injury or disease likely to produce cerebral mischief, (2) the severity of the symptoms produced was out of all proportion to the extent of the cerebral mischief present, as only a very small quantity of pus was found on the surface of, and between, the convolutions exposed at the operation, and (3) the rapid recovery which followed the operation.

(7) CASES OF ELEPHANTIASIS GRÆCORUM TREATED WITH LARGE DOSES OF SODIUM CHLORIDE

CASE I—Miss E, 21 years of age, was admitted to hospital on the 7th September 1908 for the treatment of pigmented patches on her face and extremities. Her illness commenced about 14 months previous to her admission, when some small patches of pigmentation appeared on her face and extremities, these soon ran together to form the larger patches with which she came to hospital in September. Since June 1908 the patient had applied oleum gynoecidie to the patches but with no benefit. She also had the application of X rays twice a week for about a month but she derived no advantage from this either.

On admission pigmented patches were found all over the body. The hands and feet were oedematous, there was tingling in the left forearm from the thumb half way up the radial border, and areas of anæsthesia were present on the ring and little fingers. There was considerable loss of power in the hands, so much so that the patient could hardly lift a tumbler to her mouth. The knee jerks were exaggerated. She was put on the chloride of sodium, 240 grains a day, six 10 grain cachets being given at a dose, four times a day. Also an ointment containing one drachm of the salt to the ounce was applied to the patches. No improvement in her condition was noticed for about a month during which time she continued to suffer from pain and tingling in the legs and arms. Morphia and heroin had to be employed to secure rest for the patient at night. The ointment at first appeared to cause an irritation of the skin and so its use had to be suspended for a time. By the last week of October, however, the condition of the patient appeared decidedly to improve, the pains became less and the patches began to get lighter in colour. This improvement continued and at the time of her discharge from hospital, on the 15th December 1908, all the patches, save two on the face, had altered from raised copper coloured areas to slightly reddish and mottled ones. The pains had practically disappeared and there was only an occasional tingling in the extremities. The arms too recovered their power to a considerable extent. The patient is still being treated as an outdoor case and is showing steady improvement.

CASE II—D B, 25 years of age, was admitted to hospital on the 1st December 1908 for the treatment of pigmented patches over the face, arms and legs. The disease is said by the patient to have commenced in

March of the same year as a small discoloured patch on the inner side of the dorsum of the left foot which became painful and somewhat oedematous. Subsequently a number of similar patches appeared over the face and extremities.

On admission copper coloured, raised patches were to be seen over the face and extremities, and these areas were wanting in tactile and painful sensations. The great auricular nerve on the left side and the ulnar nerves were thickened. There was in addition some loss of power in the left foot and inability to extend and flex the toes. The sodium chloride treatment was commenced on the 2nd December and in the course of six weeks the patches showed signs of becoming distinctly lighter in colour as well as of regaining their sensibility. The power of the left foot has also returned to a very considerable extent.

Considering the marked benefit derived by these cases in so short a time, the line of treatment which is exceedingly simple in its nature, appears to be worthy of being given a more extended trial.

(8) CASES OF OPIUM POISONING

Total number of cases treated = 93			
Age of Patient	Number admitted	Deaths	
Under 10 years	2	Nil	
10 to 15 "	11	8	
16 to 20 "	23	12	
21 to 30 "	43	14	
31 to 40 "	7	2	
41 to 50 "	5	3	
51 and upwards	2	1	
Total	93	40	
Sex		Race	
Males	55	Hindus	81
Females	38	Mahomedans	7
	93	Europeans and Eurasians	5
			93

Quantity taken	Number admitted	Deaths
Under $\frac{1}{2}$ tola	24	Nil
" $\frac{1}{2}$ "	18	4
" $\frac{3}{4}$ "	12	3
$\frac{1}{2}$ tola and above	11	5
Unknown	28	28
	93	40

Form in which taken

The history showed that in the majority of cases the drug was taken either in the form of pills or mixed with water. In two cases it was taken with mustard oil, in two cases with sweets, and in one case with alcohol. In one instance the tincture of opium was said to have been mistaken for some other medicine, and in another case the opium was taken with suicidal intent and a fatal result.

A plea of accidental overdose was most often made by patients who could give any history at all or make any statement as to the reason for taking the drug.

(9) A CASE OF ABDOMINAL ANEURYSM BURSTING SUBPERITONEALLY

F Ogle, a European male, 60 years of age, was admitted to this hospital on the 18th September 1907, for the treatment of rheumatism and sciatica. In the beginning of February of the same year he had been an inpatient at the Presidency General Hospital, suffering from pains across the loins. After a stay of 13 days in hospital on that occasion he was discharged very much relieved. Since that time he had had several minor relapses of pain, until about ten days previous to his admission to the Medical College Hospital he got drenched in the rain and remained in his wet clothes for some time. Two or three days after while ascending some steps, he noticed a peculiar sharp pain starting on the left groin and shooting down the back of the left

thigh This brought him to hospital for treatment He gave no history of specific disease About eight years ago he had received a kick from a horse on the left side, this was attended with no grave consequences and he recovered from the effects of it in five days or so

On admission to hospital the patient complained that he felt severe pains across his loins and that the pains became very agonising whenever he tried to stand Nothing could be made out on local examination There was no tenderness over any portion of the spine though the patient was evidently suffering agonies The respiratory and circulatory systems were found normal and the urine was healthy The patient was treated on general principles with an acid tonic mixture, and belladonna plasters and blisters were locally applied He took his discharge as practically cured on the 1st October 1907

On the 12th December 1907, however the patient returned to hospital but this time he complained more of the right hip and loin He was fairly comfortable as long as he lay down, but the moment he tried to turn on to his side or stand up, he felt the pain most agonisingly He was treated on the same lines as previously with considerable benefit, for he again took his discharge from hospital, on the 13th January 1908

On the 23rd February 1908, the patient came back to hospital once more, very much worse as regards the pains He still complained of intense shooting pains in the loins, more especially when he tried to move, and this time the pains affected both the right and the left side The patient was kept at perfect rest in bed and given an iodide and salicylate mixture internally and from time to time a purgative Locally liniments were first used, then hot ironing was tried and finally a constant current battery which seemed to afford a good deal of relief The case took his discharge from hospital on the 10th April 1908

On the 15th May 1908 the patient returned to hospital with the old trouble on him in full force He was put on the same mixture and the battery was tried on him once more but this time with little benefit Dry cupping on the right gluteal region gave no relief from the pain Careful examination for spinal trouble gave a negative result Two or three days after his admission he complained of a pain over the inner side of his left groin and to this much relief was given by the application of belladonna and glycerine Yet complaint was made of a sense of tightness over the front of the groin though nothing could be felt locally As nothing appeared to do the case good, the patient was transferred to the Surgeon's ward where he was kept under observations for five days and given mild aperients There being nothing to indicate surgical interference, the patient was once more taken into the medical wards of the hospital on the 2nd June 1908 In spite of all efforts to relieve his pain, the patient began to run down rather rapidly at this stage The pains grew so much worse that frequent doses of morphia were necessary to secure rest On the 5th June he was examined with the X rays but nothing abnormal was revealed in the chest or abdomen

On the 8th June he complained of an increased sense of tightness over the left iliac region which prevented him from extending his left leg, still nothing could be made out locally On the 11th June the pain became intense, the lower extremities oedematous and the patient wore an anxious look on his face He was at this time once again placed under the observation of the Surgeon Two suggestions were made as to the nature of the condition, namely, (1) an ilio psoas abscess, or (2) an aneurysm which had burst On the 12th June an examination of the case was made under chloroform but nothing definite could be made out and it was thought wise to wait That night the patient died at 11 P.M. and a post mortem examination was made the next morning

Post mortem examination—Right pleural cavity contained 12 oz of yellowish fluid Left pleura showed adhesions Right lung, lower lobe collapsed Left lung

healthy, but very congested Heart cavities normal and valves healthy Thoracic aorta dilated and atheromatous

Abdominal aorta dilated and atheromatous Opposite the commencement of the coeliac axis there was a large sac of the size of a fetal head On the right side the sac was intact, but on the left there was an opening which admitted the tips or three fingers and through which the blood had extravasated beneath the peritoneum The clots which had formed huge masses were partly organised and in part not so they pressed on the left kidney and made it one third the size of the right Opposite the large sac the vertebrae were eaten away, that is, the 9th, 10th, 11th and 12th dorsal vertebrae and in part also the 8th dorsal and the 1st lumbar vertebra The destructive process did not, however, reach the cord which explains the absence of symptoms due to pressure on the cord

(10) A CASE OF ANEURYSM OF THE INNOMINATE ARTERY BURSTING INTO THE TRACHEA

T H Moore, a European male, 42 years of age, by occupation a hotel keeper came out to India from Liverpool nine years ago He had syphilis 20 years back and also gonorrhoea, and according to his account he had been thoroughly treated for both these troubles He was in the habit of drinking to excess from time to time In February 1908, after a heavy drinking bout, he felt a pain come on over the liver He came to hospital on the 9th February 1908, and was admitted for hepatitis, treated and discharged cured of his symptoms on the 11th of the following month

On the 11th of October 1908 he returned to hospital complaining of a cough, a pain in the side, night sweats and progressive wasting, of thirteen weeks' duration The cause of these troubles was, he stated, a chill due to exposure and for the last two weeks previous to his admission he had been spitting up blood

Respiratory system—A cough associated with a tickling sensation in the throat Sputum mixed with frothy mucus and blood, sometimes bright but usually dark in colour No P.B. found in it at examinations made on five different occasions during the course of the disease Nothing to indicate the presence of lung mischief save a few rhonchi over the apices A certain amount of difficulty in breathing and a feeling of a weight on the chest when lying on his back, not when sitting up or lying on his side The attacks of coughing always worse at night and generally relieved by free expectoration

Nervous system Headaches present Pupils unequal The right pupil smaller than the left Light reflex present

At first the patient was treated for the hæmoptysis on general lines, with little effect The throat and lungs were carefully examined on several occasions but nothing abnormal could be made out There was no rise of temperature The liver was thought of as a possible seat of the trouble especially as the expectoration assumed the appearance of mucus mixed with liver pus An X ray examination made on the 12th December revealed nothing abnormal in the position or movements of the diaphragm but gave the appearance of a shadow indicating a general dilatation of the root of the aorta An examination of the condition of the eyes showed primary optic atrophy in the right eye An examination of the sputum made on the 25th December revealed the presence of pus corpuscles and diplococci as well as of blood A second X ray examination made on the 8th February bore out the results of the previous one, the liver was found to be normal, there were no abnormal patches in the lungs, no obvious pulsation anywhere but the root of the aorta was dilated in appearance and the retro cardiac space was not quite clear On the 10th February an inequality was noticed in the volume of the two radial pulses On the following day he brought up a considerable amount of blood with his expectoration On the 12th February he again brought up a large quantity in the form of clots and soon after expired

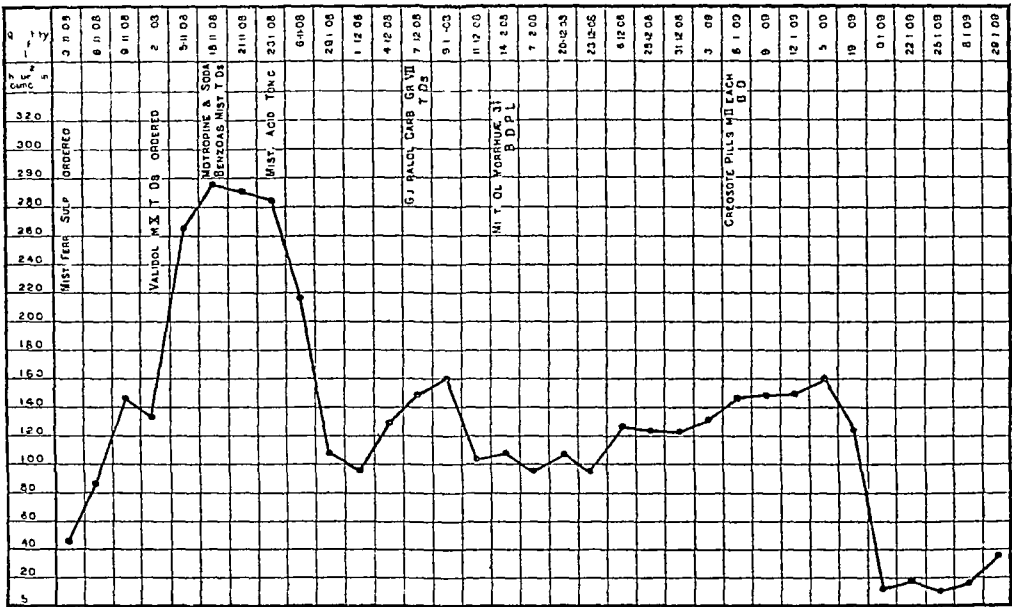
SPECIAL REPORT OF THE MEDICAL COLLEGE HOSPITAL FOR 1908

By LIEUT COL C P LUKIS, MD, FRCS, IMS,

Principal, Medical College, Calcutta

PHOSPHATIC DIABETES

CHART VI



Post mortem examination

Pleuræ adherent on both sides Lungs showed a marked hemorrhagic infiltration at their base Bronchi contained clots Heart healthy Root of the aorta showed a marked general dilatation, some fibrous thickening and atheroma Left subclavian and common carotid arteries slightly dilated at their origin Innominate artery dilated, and $\frac{1}{2}$ " below its bifurcation there was an aneurysmal sac about the size of a small pigeon's egg, almost completely filled with a fibrinous blood clot of dark colour On opening the trachea, the anterior surface 2" below the cricoid cartilage showed a perforation large enough to admit the end of a probe and communicating with the sac of the aneurysm For $\frac{1}{2}$ " above this opening the trachea was thinned out and almost ulcerated through in two places The stomach contained some blood clots but was otherwise healthy as also were the other organs in the body

(11) A CASE OF PHOSPHATIC DIABETES TERMINATING IN PHTHISIS

Dr Rose Bradford says "Of 18 cases of phosphatic diabetes under my care six have developed phthisis and died" Osler and others have demonstrated that the excretion of phosphates is increased in phthisis

On the 1st November 1908 the patient, named Govind was admitted to hospital suffering from general anasarca The history given was that an attack of dysentery occurred in April of the same year and was followed subsequently by the condition of general anasarca The latter began originally in the lower extremities and gradually spread to all parts of the body

On admission the patient was found to be a well nourished person, 30 years of age, who gave an account of having had gonorrhoea and syphilis in his younger days and of being in the habit of taking country liquor occasionally The swelling of the body generally which commenced 6 months ago, was observed by the patient to go down somewhat whenever the flow of urine was greater An examination of the urine yielded the following results Quantity in 24 hours, 48 oz., specific gravity, 1012, reaction, acid, sugar, nil, albumen, present in traces, casts, nil, phosphates, present, chlorides, 0.9 per cent

The other systems of the body were found to be normal, and as the urine examination also gave no evidence of any organic disease being present, the blood was examined and the excretory quotient was determined The former showed 4,200,000 r b c, 5100 w b c and 72 per cent Hb The latter gave Hæmosozic value of urine 0.98, and that of serum 0.8 per cent, in terms of NaCl, Excretory quotient = 1.25 a normal condition This result pointed to the albuminuria being merely functional and taking the slight degree of anæmia present as the probable cause of it, the patient was given an iron mixture from the 3rd November From the 6th the urine appeared to increase in quantity (*vide* Chart till the 12th on which day he passed 138 oz of clear pale urine, 1005 in specific gravity but containing no sugar or albumin He had at this time a pain in the limbs and back and some amount of thirst On the assumption that the case might be one of diabetes insipidus, Valisol was ordered in m x doses thrice daily As will be seen from the chart this had no effect on the quantity of the urine he passed, and on the 16th, when the urine was again examined, there was no sugar or albumen found but the total phosphates amounted to 3 grammes (the normal for Indians being 0.9 gramme) Valisol was given a trial for 7 days About this time the swelling began to disappear On the 19th urotropine and a soda benzoate mixture were ordered This too had no effect on the urine (*vide* Chart), and was replaced with the acid tonic mixture On the 4th December the patient began to get slight evening rises of temperature and developed a cough On physical examination it was found that the left side of the chest showed a patch of diminished resonance but nothing more definite was made out The patient was given guaiacol carbonate thrice daily

10th December — Tincture of iodine was painted on the left side of the chest, where the patient complained of having a pain There was an evening rise of temperature Some harsh breathing and slight dulness were detected over the left chest The sputum contained a large number of (?) pneumococci but no tubercle bacilli

15th December — Tubular breathing over the left chest and an evening rise of temperature The X-rays showed on this day a triangular shadow over the right lung, with its apex towards the axilla and the heart shadow enlarged towards the right

20th December — Evening rise of temperature Persistent pain over the left side and a slight pain over the right side of the chest The urine still the same in quantity

25th December — Oppression in the chest and flatulence after meals

30th December — Tubular breathing over a patch on the left chest Stomach washed out with soda bicarbonate lotion Urine still large in quantity

5th January — Condition of the left lung as before The urine still large in quantity Collargol ordered for three days and then creosote administered

9th January — 144 oz of urine passed in last 24 hours Evening temperature 100°F A slightly dull patch over the right chest with harsh breath sounds and some metallic râles Sputum muco purulent, showing no T B

14th January — Calmette's reaction gave a positive result within 4 hours

18th January — Diminished vocal resonance and fremitus and absence of breath-sounds over the lower half of the left chest Dulness on percussion over the same area Some difficulty in breathing and owing to this sleep disturbed A suspicion of effusion into the left pleural cavity

20th January — Pleural cavity explored with a needle and 20 cc of clear fluid drawn out This on centrifugation showed an excess of mono nuclears and a few T B There was a sudden remarkable diminution in the quantity of urine

23rd January — Fluid drawn out again and phosphates estimated both in the effusion and in the urine The total quantity in the urine still about 2 grammes in the 24 hours and that in the fluid about 0.06 per cent (as against 0.28 per cent in the urine)

29th January — Patient still continues the same

A Mirror of Hospital Practice.

NOTES ON TWO UNUSUAL SEQUELÆ OF PLAGUE

By A F HAMILTON, M B, F R C S (ENG.),

CAPTAIN, I M S,

Poona

THE two following cases present some points of interest as regards the remote sequelæ of plague—in both, a suppurative condition supervened requiring surgical interference—

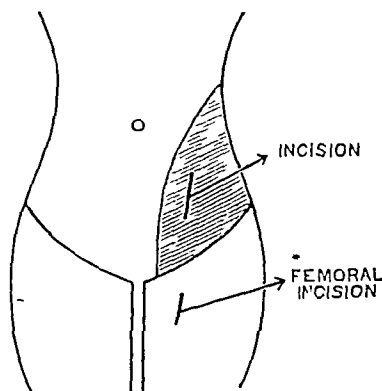
Case I—Duffadar F K, age 32 years, of XIIIth Mule Corps, contracted plague on 8th October 1906, during a severe epidemic in Poona He developed a left femoral bubo He was transferred to the General Plague Hospital, and was one of the few cases treated by Roux serum He recovered from the attack and left the plague hospital on the 25th October, and was admitted to the Staff Hospital, Poona, to convalesce A few days after it was noticed that the left foot was swollen and slightly cedematous There was no rise of temperature Within a few days gangrene of the toes developed, accompanied by pyrexia and much

pain The usual treatment for gangrene, *viz*, elevation of foot, warmth, opium was given, and shortly a line of demarcation showed itself over the dorsum of the foot—convexity of line being towards the ankle The patient looked very ill, had high fever, rapid pulse, and in spite of antiseptic precaution directed towards the gangrenous parts an offensive odour developed It was decided to amputate the foot, and on the 18th November preparations were made for a Syme's amputation No sooner had this knife entered the ankle joint, than a quantity, about 2 oz of very offensive pus was discovered in the joint and around the ligaments The blood vessels were found thrombosed, and on removal of the tourniquet very little hæmorrhage occurred It was decided to give the flaps a chance, as the skin and subcutaneous fat appeared healthy Free drainage was provided for and the space between the flaps daily irrigated through the drainage tube The patient's condition improved at once, but it soon became apparent that the flaps would slough This they did, leaving the stump of tibia and fibula covered with the granulation As there appeared to be no possibility of the bones being covered by anything more than granulation tissue, a second operation was proposed on 26th February 1907 The lower three inches of bone were removed and new flaps made from healthy skin The wound healed well and the patient made a satisfactory recovery He was invalided out of the service and granted a compassionate allowance

Remarks—There can be little doubt that the plague toxins influence in some way the blood supply of the left limb, leading possibly to thrombosis with resulting gangrene of the foot The relationship between the left femoral bubo and the diseased condition of the left leg might be mere coincidence, on the other hand it may have been the determining cause of the disease in that leg The insidious formation of pus in and around the ankle joint is hard to explain, unless it were infection from the gangrenous toes and yet a well formed line of demarcation occurred which should have constituted a barrier to infection Doubtless it would have been better surgery to have at once amputated through the lower third of the leg, on finding the parts around the ankle joint infiltrated with pus—but owing to the extremely weak condition of the patient, it was decided not to prolong the operation and subject him to the shock of a second amputation Subsequent events showed that the cause taken was probably the safer one Whether there was any connection between the vascular disease and the use of Roux serum, I am unable to state The serum was on its trial in Poona, and has since been given up in the plague hospital, the results being apparently no better with it than without I have considered this case to be one showing a sequela of plague rather than a complication, as although

the time of onset of the gangrenous condition was only some three to four weeks after the infection by plague, yet the patient left the plague hospital apparently cured, his condition being one of debility only

Case II—Driver B D, age 21, XIIIth Mule Corps, contracted plague on 30th August 1908, in Poona, at the beginning of a short but severe epidemic He had been inoculated on the day previous with antiplague vaccine, at the time of inoculation there was no suspicion of the patient being in the incubation period of the disease He was in the plague hospital for nearly two months being discharged on the 18th October 1908 He had a left femoral bubo which was incised and treated in the usual way On his discharge from the hospital the wound was quite healed He was granted three months' sick leave He returned to Poona on the 11th December, before the expiry of his leave, and was noticed to be limping, the left thigh being slightly flexed on the abdomen He was admitted to the Staff Hospital, Poona During the next fortnight he remained in bed, and the thigh became more and more flexed, the patient refusing to allow any attempt being made to straighten it owing to the pain produced by such No constitutional symptom developed No swelling in the groin or around the side of the femoral incision



Towards the end of December the patient commenced to have pyrexia in the evenings and shortly afterwards a swelling was noticed about Poupait's ligament extending upwards to the left loin It was tender on palpation, resonant on percussion and quite fixed During the next three days the swelling got perceptibly larger and extended to the middle line about 3 inches above the pubis The accompanying diagram illustrates the condition The tumour was still resonant on percussion, and more tender on palpation A diagnosis of iliac abscess was made

On the 8th January 1909, the patient was placed under chloroform and an incision about 3 inches long made, 2 inches above the anterior superior iliac spine The abdominal wall was blawney and infiltrated A good deal of hæmorrhage occurred from the upper deep angle of the wound, but no pus found I was on the point of ceasing further attempts, thinking

that I had operated before pus had actually been formed when it was noticed that the blood issuing from the wound was slightly turbid and discoloured. On pushing a long pair of forceps into the wound a gash of pus took place, and on enlarging the operation, about 20 ounces of odorous pus poured out. Preparation had been made to secure a specimen of the pus for bacteriological examination, but unfortunately owing to an accident it was found impossible to secure an uncontaminated specimen. After evacuation of the pus a large cavity was found extending upwards to the left kidney. A full-sized drainage tube was inserted and the wound packed with gauze to avert the oozing of blood.

That evening the temperature rose to 104°, but afterwards soon dropped to normal, the cavity was irrigated daily and the patient rapidly became convalescent. On the 18th January some oozing of this sero-pus was noticed from the site of the original femoral incision, but no communication could be detected between it and the large abscess cavity above. This latter was also found to extend downwards to behind the symphysis pubis.

Remarks—The source of infection of the large abscess remains undiscovered. It seems fairly certain it must have had some connection with the femoral wound below. In this case about five months elapsed from the date of infection by plague to the discovery and opening of the abscess. There was no evidence of pre-existing kidney disease, nor did the tumour present the usual features of a perinephric abscess, it commenced just above Poupert's ligament and extended upwards, apparently pushing the intestines upwards and towards the middle line, much as occur in some cases of appendix abscesses.

NOTES ON TWO CASES OF EXCISION OF THE RECTUM FOR CARCINOMA

B. H. B. MYLVAGANAN, F.R.C.S. (Eng.),
Victoria Hospital, Bangalore

1. Hinniappu—An ill-nourished Singhalese male, about 40 years old, was admitted into the General Hospital, Colombo, under the writer's care in August 1907, with symptoms of intestinal obstruction. His abdomen was much distended and painful. Vomiting was frequent and emitted a faecal odour. Has not passed any faeces or flatus for the past three days. Difficulty in passing stools set in about 6 months previous to admission. At first he was relieved by aperients and purgatives, but latterly even these failed to give him relief. On examination his rectum was found involved in a growth, situated about 2½ inches from the anus, and completely obstructing the lumen of the gut. The tumour was friable and bled very readily. It was freely moveable laterally. A blood-stained offensive discharge escaped from the anus. Pulse frequent and of low tension, about

90 per minute. Heart, lungs, liver and spleen were normal. Gave a history of syphilis.

As his condition was very grave, a left inguinal colotomy was performed with very good immediate results. His general condition improved during his stay in the hospital and he left the hospital to recruit his health.

He was re-admitted on the 17th December 1907, for the removal of the growth which was found to be a columnar carcinoma of the rectum. He had picked up a good deal and appeared fit for the radical operation. The tumour too had not extended much. It was yet freely moveable from side to side, showing that there were no adhesions to the neighbouring organs.

Operation—On the 19th December 1907, the patient was anesthetized with chloroform and placed on the right lateral position with a sand bag beneath the hips and the left thigh well turned over. I prefer this to the lithotomy position recommended by some which is no doubt suitable for the removal of growth involving the anal canal by the perineal method. In the right lateral position, the rectum occupies the highest point and all manipulations are rendered very easy. By raising the hips on a sand bag, the coils of small intestines are made to slip back into the abdominal cavity from the pelvic basin.

An incision was made from the posterior margin of the anus along the middle line as far as the middle of the sacrum. The skin with the subcutaneous tissue was reflected to the fullest extent on each side of the incision. The origin of the left gluteus maximus was exposed and detached from the lower two pieces of the sacrum and coccyx and from the posterior surface of the great sacro-sciatic ligament. The sacro-sciatic ligaments were next detached from the left side of the sacrum and from both sides of the coccyx. The coccyx and the lower two pieces of the sacrum were freed from the structures in front. The coccyx was next removed. As the upper limit of the tumour extended higher up, the space thus exposed was found inadequate for getting well above it. So, much to my reluctance, I was obliged to resect the lower two pieces of the sacrum according to Bardenheuer's modification of Kraske's operation, having first cleared the right side of the lower two pieces of the sacrum from its muscular and ligamentous attachments. The bleeding vessels were next tied. The levator ani was next separated from the rectum along the median raphe and the posterior and the lateral surfaces of the rectum were thus cleared. The anterior attachment of the rectum alone remained to be dealt with. I did not encounter any difficulty here. With a sound passed into the bladder as my guide I was able to separate the rectum from the bladder and the prostate in front with a pair of blunt-pointed scissors. Up till now I had not opened into the peritoneal cavity. As I had great difficulty in bringing the tumour

sufficiently low down, I had to divide the peritoneum in front. I was now able to bring the gut sufficiently low down to freely excise the tumour. The gut was clamped above and below the tumour and the latter was excised with a wide margin of the healthy gut. The anal portion with the sphincter ani was left intact. The divided ends of the gut were united together by double rows of fine silk sutures, the mucous surfaces being first united by a row of continuous suture and then the peritoneal coats by Lembert's sutures. The peritoneal wound was not closed, but was plugged with a piece of sterilized gauze to prevent any prolapse of the intestine and also to drain the deeper parts. The skin incision was closed with deep sutures except a small portion lower down through which the lower end of the gauze was brought out. Patient was in a state of collapse at the end of the operation. He was given saline transfusion and hypodermic injections of strychnine and adrenalin. The foot of the bed was kept raised for three days in order to prevent any prolapse of the intestines into the wound and to keep his ventricles full of blood. The patient quickly rallied from the shock and convalesced quickly. The wounds healed by first intention as there was no faecal contamination. During his convalescence patient developed diarrhoea and the closure of the colotomy wound had to be postponed.

On the 13th April 1908, the inguinal colotomy wound was closed by Dr. A. M. de Silva who succeeded me at the General Hospital, Colombo, and the patient was able to pass stools by the anus. He had also improved a good deal in his general health and was discharged on the 2nd June 1908.

2 Akkoo Bee—A Hindu female, aged 50 years, was admitted under the writer's care into Victoria Hospital, Bangalore, on the 28th April 1908, complaining of frequent and painful defaecation about a dozen times a day. The stools were said to be mixed up with blood and slime and very offensive. The act of defaecation was attended with bearing down pain and severe back ache.

Previous history—About 3 years ago, patient felt a colicky pain in her stomach one day shortly after a heavy meal which was followed by a motion mixed with mucus. Since that time she had suffered off and on with derangement of her stomach. Her appetite gradually failed and bowels acted 4 or 5 times daily, motions being scanty and mixed with slime. She found relief in stomachics and laxatives. About 6 months after the commencement of these symptoms, she began to get severe pain in her abdomen which was more or less constant. Her stools now contained blood in addition to the mucus. In the meantime she fell a victim to plague and was ill for two months. It was about 2 years ago. Now for the last one year she had steadily grown worse. Her stools contained a large quantity of pure blood, sometimes clotted blood and occa-

sionally blood and pus mixed up together. The average number of motions ranged from 10–15 times per diem. She experienced a constant pain over the sacral and coccygeal region which was aggravated by walking and the pain was transmitted down the left thigh and leg.

There is no history of cancer in her family. She is married and a mother of 3 children. No abortions. Had attained her menopause.

Condition on admission—Patient had a sallow complexion. Face was slightly puffed up. Conjunctivæ and finger nail beds were pale. She appeared to be in great bodily suffering. Even sitting up gave rise to pain.

Physical examination—Rectal examination revealed a fungating growth occupying the whole lumen of the gut, about 2½ inches from the anus. The growth was friable in the centre and bled readily. The examining finger was blood-stained and brought a few shreds of the tumour with it. Only a finger tip could pass through the lumen. The periphery of the growth was indurated and hard. The whole tumour was freely moveable laterally. The vagina was not involved. The uterus was freely moveable. The lumbar lymphatic glands were not felt. The liver, heart and lungs were normal. Rectum was slightly ballooned. The bladder was free, pulse 80 per minute, of fair tension and volume.

Operation—The operative procedure was exactly similar to the one employed for the previous case, with the exception that an artificial sacral anus had to be made, as the divided ends of the gut could not be united. Instead of stitching the upper divided end of the gut into the upper corner of the sacral incision, I made a separate incision about an inch in length, and a little to the left of the original incision and brought the divided end of the gut through this and fixed it there by sutures. My object in doing so was to narrow the lumen of the gut as much as possible and to pass the gut through the fibres of the gluteus maximus muscle. The gut was also given a half twist. The original incision was closed with deep silk worm gut sutures except the lower end through which a gauze drain was inserted to drain the deeper parts. In this case too there was a great deal of shock. Hypodermic injections of strychnine and adrenalin chloride, saline enemata and hot water bottles were freely resorted to, and the foot of the bed was kept raised for three days. The patient rallied from the shock quickly. The original incision healed up quickly without any trouble, although it was frequently contaminated with faecal matter. Since the operation she had put on flesh and her complexion had distinctly improved. She has no difficulty in retaining solid faeces although she cannot feel its passage. She wears a sponge and a belt to keep the artificial anus closed. A daily enema of warm water keeps her free from any annoyance and she is able to attend to her household duties. When last seen, she was in the best of health.

Indian Medical Gazette.

JUNE, 1909

I

THE CAUSATION OF SEX

THE problem of the causation of sex in mankind has always been a fascinating one. Its very obscurity has led to an almost infinite number of theories being put forward for its explanation, and it is only quite recently that it has been described as "on the borderland of the insoluble."

Dr E Rumley Dawson after prolonged and careful study of the question has given his views to the world* and has announced a new theory of sex based on clinical materials. He further claims to be able to forecast the sex of the unborn child and to determine or produce either sex at will.

This theory is built up essentially on clinical material and facts, and thus differs from Schenk's theory, which recently startled the world. Dr. Dawson speaks of Schenk's theory as an attempt to give a scientific flavour to the old nursery rhyme—

"Sugar and spice and all things nice
That is what girls are made of"

The theory was never seriously credited, the fact that it was unable to explain the occasional simultaneous birth of a boy and a girl rendered the position taken up absolutely untenable.

Dr Dawson's theory is very simple and should be quite easily proved to be correct or not by practising gynaecologists. His view is that the particular ovary supplying the ovum which becomes fertilised is the essential factor in the causation of sex. The sex of the foetus is not due to the male parent, but depends on which ovary supplies the ovum. A male foetus is due to the fertilisation of an ovum that came from the right ovary, and a female foetus is due to the fertilisation of an ovum from the left ovary.

The female or woman has, therefore, in her two ovaries the already definitely sexed ova ready for the fertilising action of the male semen, so that, though the male fertilises the ripened ovum, he has no real influence in the causation of sex.

* The Causation of Sex. A new theory of sex based on clinical materials. The forecasting of the sex of the unborn child, and on the determination or production of sex at will. By E Rumley Dawson, M.R.C.P. (Lond.) H. K. Lewis, Gower Street, 1909.

It follows that directly an ovum is fertilised, a boy or girl has begun to be developed and no external or other influence brought to bear on the mother can alter the sex of the future child. It seems fruitless to enquire why the right ovary should have been chosen for the production of boys and left for girls, the only explanation given being that perhaps the weaker sex should be derived from the weaker or left side of the body.

It is fairly well admitted that only one ovum is produced at a time, and a good deal of evidence is brought forward by Dr Dawson to show that the ova are supplied alternately, first by one ovary then by the other, that is, although both ovaries are normally active, they do not work synchronously. The strongest evidence on this point has been obtained from *post-mortem* records where death has taken place after a few or definite number of menstrual periods had occurred, it has been found in such cases that the cicatricial pits or scars, the remains of the corpora lutea, are equal in the two ovaries together to the number of periods passed. This holds good also for animals in which single pregnancy is customary, as has been shown by Heape in monkeys.

With regard to the part played by the male parent or father, it will come as a serious blow to the vanity of man that he has no influence in the causation of the sex of the coming child, this is essentially the prerogative of the mother. "She prepares an ovum (male or female) in much the same way as a parlour-maid prepares and lays a fire—it may be a coal or wood fire—and waits for the match to be applied before the fire develops." The match cannot make the coal fire into a wood one nor *vice versa*, in a similar way, the spermatozoon starts the process of the development of the child, but has no influence in determining what sex the child may be.

The author supports this contention with clinical facts and cases. That the male parent does not influence the sex of the coming child is evidenced by such cases as those in which a woman has one-sexed children by different men or those, in which the father produced both-sexed children with different wives, but only one sex with each wife—the father did not influence the sex, the women were "unilaterally" sterile. This has also been noted in animals it is not uncommon to meet with females whose

offspring is almost invariably of the same sex, although it has resulted from intercourse with several different males, on the other hand, males are never met with that exhibit any such uniformity in the sex of their offspring with different females.

The author, in order to prove his theory that the male sex is due to the fertilisation of ova derived from the right ovary, points out that it will be necessary to show that in male pregnancy the corpus luteum is in the right ovary. This he has always found to be true and quotes a series of cases to clinch the argument.

He also brings forward in evidence cases of pregnancy after operations on the ovaries, which prove the theory and show the effect on child-bearing of operations on the ovaries.

He maintains that, while unilateral ovariectomy does not prevent a woman having children, those children will all be of the same sex, provided all ovarian tissue is removed from one side. There should surely be records of hundreds of cases of unilateral ovariectomy in the large maternity and gynæcological hospitals of India which, if followed up, would bring these statements to the test and prove or disprove the whole theory. Dr Dawson has gone very fully into the history and records of cases he could find, and certainly the facts and evidence he brings forward appear to give strong support to his views.

With regard to the vexed question of how nature insures the production of more boys than girls—a question most difficult to explain by any of the theories hitherto put forward to elucidate the cause of sex—the author readily explains on his theory. It is acknowledged that the right ovary is larger than the left, so that the area of ovarian tissue capable of producing right-sided or male ova is greater in extent than in the left ovary, and thus nature secures the production of more male ova than female ova.

That the question is probably a much more complicated one than the author would have us believe from this simple explanation, it would be well to bear in mind that he has already stated and brought forward evidence to prove that the ovaries work alternately, "double or bilateral ovulation is not common." Further, that seeing a male and a female ovum is shed alternately, the probabilities are that over a sufficiently large number of fertilisations an equal number of each would be fertilised and so the production

of more male than female children would not take place. It is possible this argument might be met if the greater proportion of boys to girls were covered by the extra twin male births over twin female births, due to the greater probability of the larger right ovary providing two distinct ova at a time more frequently than the smaller left ovary.

But while it may be admitted that twin males do predominate over twin females, there is no evidence to show that the predominance is sufficient to account for the greater number of males born than females.

Dr Dawson has the full courage of his convictions, and goes out of his way to meet criticisms of his theory and analyse the objections that have been made. He admits the objection that carries most weight and is most difficult to explain, is that in the majority of birds only one ovary, and that the left, is present, yet the hen lays eggs from which both sexes are derived. This is met by absolutely refusing to accept the dictum that "the cause of sex must act universally throughout the animal kingdom or at least in the vertebrata." He further points out that birds are remarkable in other respects as not only is the right ovary absent, but the right carotid artery and right jugular vein are also both absent, so that, if we are to alter our views as to the cause of sex in mankind owing to the absence of the right ovary in birds, we must similarly alter our views on the human circulation owing to the absence of these important vessels from the right side of the neck in birds. While the argument could hardly be called convincing, it helps to bring home to us our ignorance of the whole subject. He is more convincing in his method of dealing with the cases recorded, which were thought to disprove his theory.

There are on record now a dozen genuine cases of pregnancy after double or bilateral ovariectomy, it is quite evident, therefore, that it is extremely difficult to be certain of removing all ovarian tissue. This difficulty, Dr Dawson says, is the explanation of those cases where a male or female child was born after the removal of the right or left ovary respectively, and while the argument, according to the evidence he adduces, is fully satisfying, it completely safeguards the theory he has committed himself to by placing out of court practically all direct evidence disproving it.

We shall only refer to one or two more important points on this fascinating subject, one of the most interesting of these is the forecasting or prediction of the sex of the coming child. From his contention of ovulation occurring alternately from male or right ovary and from female or left ovary, Dr Dawson claims to have been able to predict the sex of the unborn child in 97 per cent. of cases, and, if mothers were able to correctly state the month when confinement is to be expected, the remaining 3 per cent could be predicted also. His method is as follows in normal cases (excluding abortions, miscarriages, etc.) Take the last child's birthday, count back forty weeks to find the ovulation month, or month in which the ovum was fertilised which yielded the child. The sex of this child being known, we then proceed alternately from the ovulation month until we come down to the tenth ovulation period prior to the expected month of birth of the coming child—allowing an extra or thirteenth ovulation between each December and January of the year following. We can by this means find the sex of the ovulation which has just been fertilised and with which the patient is now pregnant. Because of the thirteen ovulations per annum it follows that children born in the same month in alternate years will be of the same sex, if the pregnancies were normal, and of opposite sexes if born in the same month of consecutive years.

This is borne out by examples in the Royal families and in private practice, each one will be able to test the truth of the statement for himself from examples under his own observations. Dr Dawson suggests as a method of testing his plan of forecasting sex to work through some of the leading aristocratic families, the dates of whose children's births are easily obtained.

It will be found that in nearly all cases the sex of a subsequent child could have been correctly foretold, owing to the previous child's sex and birthday being known.

The last point to which we shall refer is the author's statement of being able to insure the determination or production of sex at will. It is abundantly evident from his arguments that the production of sex at will must consist in avoiding any attempt at fertilisation in the months during which an ovum is produced of the sex which is not desired.

To secure a different sex child to the child last born, all that is necessary is to find the ovulation month of the last child, then reckon alternately month by month, and so find the months in which a male or female ovum, corresponding to the sex of the last child, is shed, during these months no sexual intercourse must take place. If fertilisation ensues during one of the other months, a child of the opposite sex will be the result.

Much of the unhappiness in royal and other houses, according to the author, could easily be avoided by calculating by his method the sex of the ovulation month and avoiding any danger of fertilisation during those particular months in which ova opposite in sex to that desired are shed. The weakness of the doctrine put forward is that the menstrual periods must be normal, the pregnancies normal, fertilisation must not take place during lactation and a first child's sex cannot be determined. However, if these views stand the test of practical application, a very great advance indeed has been made in the determination and causation of sex.

In marked contrast to Dr Dawson's ideas, Professor E. B. Wilson after many years' work on the cell, gives in *Science* (Ext Journ, Am Med Assoc), some of his results and conclusions which have a bearing on the determination of sex. In his opinion "it may fairly be said that substantial advances in the analysis of the mechanism of sex-production are being made by experimental and cytologic research," since it seems fairly certain that factors which determine sex are no longer hypothetical, but are integral units which may be seen with the microscope in the germ cells.

The factors which determine sex are to be found in the germ cells of the male. They are what he terms accessory chromosomes and can be easily distinguished microscopically. "In all cases the spermatozoa are formed in pairs and the chromosomes are so distributed that one member of each pair receives the accessory chromosomes." Those spermatozoa which receive the accessory chromosomes are female-producing, those which do not receive them are male-producing.

The egg or ovum appears to play a relatively passive rôle in the determination of sex. It seems to have no preference as to whether it shall be fertilized by a male-producing or a female-producing spermatozoon.

These views are the direct opposite to those put forward by Dr Dawson who gives all the credit in the determination of sex to the female, while the spermatozoon, he states, has no influence at all

THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE

WE have much pleasure in publishing a copy of the preliminary circular of the first meeting of the Far Eastern Association of Tropical Medicine. This Association was originated two years ago and includes a number of men prominent in medical work in the Far East.

We hope that very strong support and assistance will be given by our readers to this meeting, and that a large contingent will contribute papers and as many as possible be present at the meeting. The success—phenomenal success—of the recent Bombay Medical Congress gives some idea of the importance to the medical profession of these meetings and the resulting discussions, and, after the very large measure of support given by medical men with little or no connection with India, it is the plain duty of the profession in India to assist to the very best that in them lies in contributing to the success of this gathering in Manila. The programme of subjects open for papers and discussions is extensive enough to suit the divergent tastes of almost every line of specialist and research worker.

We would particularly call attention to the last paragraph of the circular and ask all members of the profession in India who intend contributing papers, or who hope to be present in person, to give early information to the Secretary, so that the final programme of the meeting may be available at the earliest possible moment.

FIRST BIENNIAL MEETING OF THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE

Manila, P I, March 6 to March 14, 1910

DEAR SIR,—In accordance with the report of a permanent committee on programme, appointed at the sixth annual meeting of the Philippine Islands Medical Association, for the first biennial meeting of the Far Eastern Association of Tropical Medicine, it is proposed that the first

meeting of the Far Eastern Association of Tropical Medicine be held for a period of nine days, opening Sunday afternoon, March 6, 1910, and closing with a business session at Baguio, Benguet, the summer capital of the Philippines, on Monday, March 14, 1910. The following has been adopted as the outline of a programme

At Manila

Sunday afternoon, March 6—Opening session

Monday, March 7—Protozoology, Helminthology

Tuesday, March 8—Cholera, Plague, and Leprosy

Wednesday, March 9—Surgery and Obstetrics, Diseases of Children

Thursday, March 10—Fever in the Tropics, including Malaria, Typhoid, etc

Friday, March 11—Dysentery, Beriberi

Saturday, March 12—En route to Baguio

At Baguio

Sunday, March 13—Tuberculosis

Monday, March 14—Climate, Hygiene and Sanitation

Business session

Return to Manila Monday night

It is proposed that the daily sessions begin at 9 A.M., and continue until 5 P.M., with an intermission from 12 to 2 for luncheon. The sessions on Tuberculosis, Climate, Hygiene and Sanitation and the business sessions will be held at Baguio in the Benguet mountains.

A suitable social programme will be arranged.

In order that the committee on arrangements may, at an early date, have at hand as much information as possible regarding the probable attendance and the material available for the final programme, it is requested that you communicate at your earliest convenience with Dr E. R. Whitmore, Secretary-Treasurer of the Philippine branch of the Far Eastern Association of Tropical Medicine. It is earnestly desired, also, that you furnish such ideas and criticisms concerning the proposed programme as may suggest themselves.

I am, very truly yours,

PAUL C. FREER,

President of the Far Eastern Association of Tropical Medicine

THE NEW INDIAN MEDICAL SERVICE

OVER twelve years have passed since the Bengal, Madras, and Bombay Medical Services were closed, and the new service, in which all are liable for general service, was opened. The first batch of the juniors have recently attained the rank of Major. It is, therefore, a convenient time to take stock of the service statistics of the last twelve years.

During this period 841 men have entered the service. Six of these were plague medical officers, who entered by direct appointment, two exchanged into the Indian Medical Service from the R. A. M. C. The rest entered the service, in the ordinary way, by passing the competitive examination.

On the other hand, there have been 44 casualties, as follows —

Died	29
Resigned	6
Retired on half pay	3
Transferred to R. A. M. C. at Netley	1
Exchanged into R. A. M. C.	2
Never joined	3
TOTAL	44

Five at least of the deaths have been due to enteric fever, three to cholera, including the senior officer in the service, Captain A. A. F. Macardle, and four to accident. One, Lieutenant F. W. Sims, has fallen in action, at Gumburru, Somaliland, on 15th April 1903. Another, Lieutenant C. H. Adams-Wylie, died of enteric fever at Bloemfontein on 2nd June 1900, during the South African War. Among the 841 entrants, nineteen have been pure natives of India, including three Parsis, two Musalmans, and one Burmese.

The members of the new service have, among them, earned five D. S. Os (Hugo, Triloh, 1898, Williams, China, 1900, Cox, Waziristan, 1902, Horton and Hudson, Somaliland, 1904), and two Kaiser-i-Hind Medals, a good record, for such decorations usually go to the senior officers in service.

The number of officers of the Indian Medical Service who, before entering, had taken University degrees, or the Fellowship of the College of Surgeons, is very large, and many more have taken diplomas in Tropical Medicine while at home on furlough. As regards the original scientific work done by members of the

service, we need only mention the names of Liston and Christophers. But there are many others whose good work has been almost as prominent as that of these two.

Of all British surnames, by far the most common is Smith. So it may be noted, as a curious circumstance, that over 800 men had entered before the simple name of Smith appeared in the list for the first time, though there is one officer higher up, who owns Smith as part of a double name.

D G C

Current Topics.

THE PASTEUR INSTITUTE OF SOUTHERN INDIA, COONOR

THE second annual report of the Central Committee of the Association together with the report of the Director (Major Cornwall, I.M.S.) for the period ending 28th February 1909 has just been received, and we hasten to congratulate all concerned with the incorporation of the Institute on its yearly increasing success and on the important work being carried out by the Director and his staff.

That this Institute was a pressing necessity and that it meets a badly-felt want is shown by the attendance during the period it has been opened. During the period 1907-8 (11 months) 180 patients were treated for suspected rabic infection with no failures, during the year covered by this report 340 cases were treated with two failures or 58 per cent., over the whole period since the opening of the Institute 520 patients have undergone anti-rabic treatment with a percentage of 38 failures.

It may be at once said that the two cases of failure should hardly be counted as such, as one developed hydrophobia prior to the period required for immunity to be established, while the other was said to have died of the disease—the diagnosis being based on the verbal description of fellow-cookies of his condition before death.

We consider Major Cornwall's notes of facts bearing on the virulence of rabies in India of very special importance and of great interest. Some of the cases he describes merit general publication in both the medical and lay press. If anything could convince those who pose as sceptics of the efficacy of anti-rabic treatment, a perusal of these notes should certainly do so. In order that none of our readers may miss the opportunity, afforded by a knowledge of these recorded cases, of strengthening their hands and increasing the authority of advice they may be called on at any time to give, we give a few extracts —

1. A rabid dog bit five and licked four persons on the 21st March 1908. Eight came to the Institute, were

treated and remained in good health. The ninth—who was bitten—did not come for treatment and developed hydrophobia 60 days afterwards and died.

2 Four persons were bitten by a dog on 15th April 1908. One came to the Institute, was treated and remained in good health, two of them developed hydrophobia 39 and 99 days after being bitten, while the fourth remained well 106 days after the bite.

3 A dog bit two children on 8th April 1908. One came for treatment and is doing well, the other died of hydrophobia 62 days after the bite.

4 Twenty-one persons were bitten by a jackal on 13th July 1908, none came for treatment. Four died of hydrophobia—the remaining 17 alive and well 230 days after being bitten.

In all the instances in which it was possible to obtain comparable information, the available statistics show that of 48 persons bitten 12 came for treatment, and survived, 36 did not undergo treatment, and of these, 11 died of hydrophobia and 23 survived up to date.

In other words, one's chance of not getting rabies on being bitten by a rabid dog is about 60%, while, if treated by anti-rabic inoculations, it becomes practically 100%.

BULLETIN OF THE PASTEUR INSTITUTE OF SOUTHERN INDIA

THE staff of the Coonoor Pasteur Institute publish in this Bulletin the results of a year's research work and observations on the problems connected with rabies.

It is a subject which, every one admits, presents a large number of obscure problems, and a great deal of our knowledge regarding the causation and treatment of rabies is little better than empirical. We talk of "street virus" and "fixed virus," but what are they? No one appears to have been able to isolate them, and some workers on this subject hardly seem to believe that the explanation of rabic symptoms by virus infection is satisfactory. There being so much doubt and obscurity with regard to rabies, it is not to be wondered at that all over the world wherever an Institute exists, continual research is going on and gradually the true facts are being brought out and dark places made light.

Major Cornwall, I.M.S., and Assistant Surgeon M. Kesava Pai in this Bulletin have added the facts they have been able to investigate and support to the sum total of what is known regarding rabies. It is only by painstaking and laborious work, such as recorded in the pages of this report, that knowledge can be gained and spread to a world eagerly waiting to receive it. Many important problems have been investigated and results obtained which will serve as stepping stones to further research and eventually, we hope, to a complete elucidation of the subject.

The authors have made a very complete study of "Negri Bodies" whose presence in the cells of the nervous system of animals, including that of man, dying of rabies—has been

established beyond all dispute. So much so is this the case that in some Institutes, the microscope is exclusively relied upon in determining whether a suspected animal has died of rabies or not. It is, therefore, a matter of great importance that a complete understanding should exist with regard to this method of diagnosis of rabies.

Much work has also been done on the accurate diagnosis of the disease in inoculated animals, and a study of the temperature and weight in animals developing rabies made. As would be expected, there is a rapid fall in both weight and temperature after an initial rise in the latter; this has been shown before to be accompanied by a rapid fall in the blood pressure on the development of rabies. Much important information is given in the report which will well repay its perusal by any one interested in the subject.

TWO NEW SIGNS OF PERFORATION IN TYPHOID

THE greatest bugbear to the physician in the management of typhoid fever is the ever-present liability to intestinal perforation. This complication occurs in about 3 per cent of all cases of typhoid, and, according to Osler, is the cause of about one-third of all fatal terminations in that disease. The early diagnosis of perforation is, by no means, an easy and simple matter, so that any light thrown on the subject or help in arriving at an early definite opinion is of great importance.

Dr. A. J. Brown (*Journal American Medical Association*), from a study of seven cases of perforation, observed two signs which appear of importance in the early diagnosis of perforation.

The first, for want of a better description, he has designated the "dipping crackle" which he describes as follows—

The "dipping crackle" sign—on placing the bell of the stethoscope over the part where pain and tenderness is most complained of and suddenly dipping with it, as in dipping palpation, a very fine crackle is heard—very much like a fine crepitant rale, or as if two sticky surfaces were being drawn apart. The sign is very localised and occurs very early after perforation, it is never found later than four hours after the initial symptoms.

The second sign is a tendency for the point of most acute tenderness and locality of pain in perforation to move in the direction of the part of the abdomen that is lowermost when the patient is turned on one or other side. Dr. Brown states that, on the occurrence of sudden pain in a case of typhoid, the patient should be immediately turned on the side opposite the pain, if the pain and tenderness follow the turn in from fifteen minutes to half an hour, the diagnosis of perforation may be considered confirmed.

Pain, sudden and severe, strictly localized at first but soon beginning to spread in directions determined by the position in which the patient lies, is the most pathognomonic symptom of perforation.

It is not a method of diagnosis that will appeal to the physician who has the good of his patient at heart. If the conditions are trustworthy, it can only mean a spreading of what might otherwise remain a localised peritonitis by turning the patient on one or other side.

SIR PATRICK MANSON THE STEPS OF A GREAT DISCOVERY

THOUGH Sir Patrick Manson's discovery of the mosquito origin of filariasis and his extension of this fact as a hypothesis to the origin of malaria are famous, the steps by which he was led to these epoch-making discoveries are not generally known. He told the story at a dinner given in his honour by the Society of Authors, this story affords one of the most beautiful examples of deduction ever made in medicine. Timothy Lewis discovered the *Filaria Sanguinis hominis* in the blood in elephantiasis. As it wriggles about in a loose sheath and shows no evidence of growth nor power of reproduction, Manson concluded that it must be the young of some other animal. This he found to be the adult filaria which lies in the lymphatics. The question then arose how does the young parasite pass from man to man?

As it could not escape spontaneously from the body, it occurred to Manson that there must intervene some agent capable of piercing the skin and that this agent must absorb the blood of the human body, and with it the parasite.

The agent that satisfied these conditions was the mosquito. Then Manson made his striking discovery as to the habits of the parasite which tended to confirm the hypothesis. He determined to examine the blood of 1,000 Chinese in order to find the frequency with which the parasite occurred in human blood. The task was so great that he trained two Chinese medical students to help him. They were occupied in hospital duties, one during the day and the other during the night. The student who had leisure to work during the night brought a large number of positive results, but the one who worked during the day seldom brought any. This fact led Manson to investigate the habits of the filaria and he found that in ordinary conditions of health filariae came into the blood about sunset, increased in numbers towards midnight and gradually disappeared towards morning. This periodicity appeared to be an adaptation to the nocturnal habits of the mosquito.

He then fed mosquitoes at night on a patient infected with filaria. In the stomachs of these mosquitoes he found filariae, which, instead of being killed, seemed to be stimulated to fresh

activity and had broken through their sacs. The problem then arose, how does the filaria reach the human body? Manson traced it through the stomach wall of the mosquito, into the abdominal cavity, and then into the thoracic muscles, and ascertained that during its passage it increased enormously in length. Later in England he traced it to the proboscis of the mosquito, where he saw it outstretched, evidently waiting for an opportunity to escape. By analogous reason Manson was led to formulate the mosquito hypothesis of malaria — (London Letter, Journ of Am Med Assoc)

TUBERCULIN IN GENERAL PRACTICE

DR J. W. WANDBY GRIFFIN in the "Hospital" publishes the following instructive note on the treatment by tuberculin in general practice —

The curative value of tuberculin (Koch's T. R.) in tuberculous diseases has been recognised after fairly extended trial in hospitals, it is not so well known, however, that this agent may be of equal value in general practice, despite the different conditions there obtaining. The average medical practitioner has not the time nor energy necessary for the determination of the variations of the opsonic index, which was formerly considered an essential part of the scientific administration of this agent, in spite of the differences in results obtained in consequence of the personal equations of the investigators, and has to be content with clinical evidences of the progress of the disease, there can now be little doubt that these are sufficient in many cases to guide the administration of tuberculin with most satisfactory results.

The site of the disease is an important consideration in determining the advisability of this treatment. Tuberculin seems to be of most value in the chronic tuberculous lesions of bone where there are sinuses of long standing, and it has been recommended for tuberculous peritonitis and for diseases of the joints with careful graduated dosage. It seems to have but little efficacy for tuberculous glands in the neck, and to be very injurious in any but the smallest doses if there is, or has been, any tuberculous disease of the eyes, in this latter case an acute inflammation may be set up thus and grave consequences result. In acute or recently acute tuberculous lesions it seems to do more harm than good.

The following points should be borne in mind —

- 1 The idiosyncrasy of the individual, though not marked as a rule, may, however, be so, and unless graduated dosage be employed, excessive reaction may occur. Children as a rule take tuberculin well.

- 2 The temperature is a valuable indication of the condition of the patient, a rise of two or three degrees within a day or two usually indicates that the dose has been excessive,

although, however, not necessarily unbeneficial nor injurious in some cases this evidence of reaction is delayed for a week or ten days

3 The actual lesion also may exhibit evidences of reaction if the dose has been large, there is then redness and swelling round the opening of the sinus with some skin infiltration which persists usually for some days, after which the wound frequently looks more healthy, and healing continues more rapidly and effectively Tuberculous joints occasionally react sharply to tuberculin, and considerable damage may be caused Graduated dosage is, therefore, essential in such until clinical evidences have established the optimum dose

Tuberculin may be administered by hypodermic injection or by the mouth An average hypodermic dose for sinuses of long standing is 1/2,000 mg (old style), this is a very convenient dose to stock, since from it lesser quantities can be easily measured Tuberculin must be quite freshly prepared unless the concentrated fluid retained in 1 cc phials is used, which is said to keep well if stored in a cool and dark place, the process of dilution is, however, rather tedious In many cases it is advisable to begin with a dose of 1/10000 or 1/8000 of a milligramme (old style) repeated at fortnightly intervals, the dose being gradually increased until a definite improvement appears, this dose being then taken as the standard for the individual Rarely there may result some local infiltration of the tissues at the site of injection, this may persist a few days and be a little painful, but soon subsides without other adverse signs Oral administration has some advantages over hypodermic, it is less alarming to the patient, and there is less danger of overdose and excessive reaction Tablets are now made by Messrs Allen and Hanbury at the suggestion of Dr Heaton, of Westgate-on-Sea, which keep well and can be easily administered Larger doses are necessary than in hypodermic treatment, 1/5000 milligramme (old style) is a fair initial dose The best time for taking tuberculin thus is probably one hour before breakfast, the tablet should be crushed to powder, and the dose repeated on the two following mornings, and then discontinued for a fortnight Given thus, reaction occurs later than in hypodermic dosing, and is less marked, so that this method is safer for cases in which serious surfaces are involved The opsonic index is affected by oral administration of tuberculin precisely as by hypodermic administration

Tuberculin in cases of lupus is of marked value in conjunction with light treatment (ultra-violet rays) it shortens the necessary exposure and healing progresses more rapidly, smaller doses are advisable in such cases Improvement has also been observed in lupus cases treated solely by tuberculin, although the benefit is slower and the dose required higher as a rule than in tuberculous bone diseases

CHICKS FROM TRANSPLANTED OVARIES

C C GUTHRIE has removed ovaries from fowls, and replaced them by transplanting ovaries from other fowls, and found that fowls on which this operation had been performed at first lost weight, but that during the second year then weight approached the normal He has since reported (Qu Bull, Med Dept, Washington University) that the ovaries that had been transplanted seem to function in a normal manner The colour-markings of the resulting offspring appear to be influenced by the foster-mother.—(*Journ Am Med Assoc*)

GLYCOSURIA IN PREGNANCY

WILLIAMS (*Amer Journ of Medical Sciences, Phil*) writes a most important paper on the clinical significance of glycosuria in pregnant women Great divergence of opinion exists regarding the interpretation to be placed on this condition Matthews Duncan from a study of his own and recorded cases concluded that diabetes constituted one of the most serious complications of pregnancy Williams does not agree entirely with this opinion, and from a critical examination of recorded cases he draws the following conclusions —

1 A positive Fehling reaction during pregnancy does not necessarily indicate the existence of diabetes, but is usually due to lactosuria, or to transient, alimentary or recurrent glycosuria

2 In such cases it is imperative to determine whether the sugar occurs as lactose or glucose, as lactosuria is without clinical significance and is probably associated with premature activity of the breasts

3 If glycosuria appears late in pregnancy, does not exceed 2 per cent, is not accompanied by symptoms, it is probably transient and may disappear spontaneously If sugar appears early in pregnancy and in large amounts, the condition is more serious It may be impossible to make a positive diagnosis until after delivery, when the condition disappears in glycosuria, but persists in diabetic patients

4 If the output of sugar is large and cannot be controlled, or at least markedly diminished by suitable dietetic and medicinal treatment, the indication for abortion or premature labour is indicated even in the absence of serious symptoms and much more so when they are present

FLEAS AND THEIR HOSTS

MCCOY AND MITZMAIN have carried out experiments in San Francisco as to the avidity with which fleas commonly found on rats, etc, will bite man In 1904 Baker had written that the fleas of the mouse, rats, squirrel, mole and shrew have never been known to bite the human being, but he had personally been bitten by rabbit fleas Wherry however asserted that squirrel fleas do bite man, and experiments with these fleas (*Ceratophyllus acutus* and *Holopsyllus anomalus*) established this McCoy and Mitzmain think that dissimilar technique and the use of various species of insects are the reasons for the discordance of opinions on

the subject In San Francisco they found that *Læmopsyllus cheopis* and *Ceratophyllus fasciatus* are both very common, their relative numbers varying according to the season of the year Fleas were collected from rats that had been anaesthetised with ether, and were identified by means of a hand lens while still under the influence of the ether—and placed each in a separate test tube, whose mouth was from time to time applied to the hand or forearm of a healthy man Eventually the identification of each flea was confirmed by microscopic examination under a low power

A considerable percentage of both *L. cheopis* and *C. fasciatus* with or without previous starvation, will, they found, attack man when given an opportunity to choose between man and a rat, and both may be kept alive for long periods on human blood alone *Otenopsyllus musculus*, which is common in Europe but rare in San Francisco, will at all times bite man, as will *C. acutus* and *H. anomalus*—(*Public Health Reports*, U S Pub H and M-H Service, vol xxiv, No 8, Feby 19, 1909)

A NEW METHOD FOR OBTAINING LOCAL ANÆSTHESIA

On 10th March 1901 Bier reported to the Berlin Medical Society that he had in 138 severe operations employed the following means of causing local anæsthesia, and that in only five cases, of which three were children and all were highly nervous individuals, did he fail to obtain complete success The limb is rendered bloodless, and then into one of the cutaneous veins some novocain in $\frac{1}{2}$ per cent solution is injected, the needle being directed towards the distal end of the limb, after two rubber bands have been fixed round the limb, one above and the other below the seat of operation In one or two minutes the field of operation becomes anæsthetic and after 6–8 minutes the whole limb Poisoning need not be feared as the anæsthetic is soon anchored by the protoplasm of the cells of the part, and does not enter the general circulation So powerful is the action of the drug on the nerves that not only sensation but also motion are affected The disadvantage of the method is the fleeting character of the anæsthesia, which disappears within a few minutes after the constricting band has been removed from the limb For this reason hæmostasis must be carried out on the bloodless tissues The dose of the novocain solution that has to be employed varies, but as much as 80 cc have been given without any ill-effects

CANTHARIDES AND TUBULAR NEPHRITIS

SOME years ago Dr Lanceaux advocated the administration of tincture of cantharides for cases of tubular nephritis which do not yield to the ordinary treatment with diuretics The use of

the drug in these conditions was, however, warmly contested on the ground that it excites inflammation of the kidney, and cannot, therefore, cure an already inflamed organ In a contribution to the *Journal de Médecine* Dr Lanceaux again returns to the subject and reports a number of cases in which he has obtained remarkable success by the exhibition of this drug in small doses One case was that of a little girl, aged 8, who developed a severe nephritis after scarlet fever There were albuminuria, hæmaturia, and cylindrical casts, with vomiting, pallor, œdema of the face and lower limbs, and insomnia, and the total amount of urine excreted in 24 hours varied between 150 and 250 cubic centimetres The symptoms persisted in spite of treatment for nearly a month, and then one minim of tincture of cantharides was administered On the following day the amount of urine excreted rose to 600 cc For the four following days two minims were given each day, and the amount of urine each day rose successively to 1,000, 1,400, 1,600 and 2,000 cc The drug was then stopped, and the patient made rapid progress, and at the end of six weeks left the hospital entirely cured Similar results followed the treatment in some cases of nephritis in young adults, brought on by exposure to cold and excessive exertion In each case the symptoms were most severe, especially in regard to the diminished quantity of urine excreted In these cases, of course, larger doses were given, commencing with 4 or 5 minims and increasing to 12 minims a day for a few successive days On each occasion the administration of the drug was immediately followed by a rapid increase in the amount of urine excreted and a steady amelioration of all the symptoms to complete cure These facts, supported by so high an authority as Dr Lanceaux, will undoubtedly lead to a more extended trial of the drug in such cases—(*The Hospital*)

QUININE FOR PROLAPSUS UTERI

Dr I INGLIS PARSONS (*The Practitioner*) introduces a new method of treatment for prolapse of the uterus

He reviews the theories that have been put forward to explain how the organ is supported in health, and, after effectually disposing of the support given by the pelvic floor and intra-abdominal pressure, he arrives at the conclusion that there is another much more important factor in the sustaining of the uterus, that the uterus is mainly held up by the connective tissues running from the side of the pelvis with the vessels to the uterine wall

Dr Parsons points out that the credit of this discovery, which is usually given to a foreigner, is really due to the late Dr Henry Savage who, in his book on the *Surgical Anatomy of the Female Pelvic Organs*, stated "that

after division of the utero-sacral ligaments, obstruction to prolapse is offered by the sub-peritoneal cellular tissue, particularly where it surrounds and accompanies the uterine blood vessels forming a resisting fibro-cellular band between the uterus and the sacro-iliac articulation." That Dr. Savage's observations were correct seems extremely probable, as they readily explain the clinical facts observed in connection with prolapse, viz., that the uterus would often keep up when the support of the pelvic floor is lost by rupture, and that the uterus sometimes comes down when the pelvic floor is intact, and giving all the support it is capable of. In the former case the ligaments can hold up the uterus because they are strong, and, in the latter, the uterus comes down because they are weak.

Dr. Paissons goes on to discuss the different lines of treatment that have been adopted, particularly ventro-fixation and ventro-suspension, but comes to the conclusion that, if it be granted that the uterus is chiefly kept up in health by the above-mentioned ligaments, the ideal treatment would be some method by which those ligaments could be strengthened rather than creating a new one by attachment to the abdominal wall.

It occurred to him that this might be done by irritating the cellular tissue with a quinine injection so as to produce an effusion of lymph that would form new connective tissue.

He has up to now, after eleven years' experience, had 150 cases treated by his method of quinine injection and quotes 80 cases done by other medical men. The results are, on the whole, very good.

Taking all the easiest cases and also the most difficult, the latter forming by far the larger proportion, and including a great many cases of chronic procidentia, in 75 per cent. complete cure was effected, 20 per cent. were greatly improved and 5 per cent. failed. Other operating surgeons who have tried this method can claim even better results than Dr. Paissons.

The operation itself is very simple, practically nothing more than the injection of a little quinine solution through the vaginal wall about $\frac{3}{4}$ of an inch from the cervix, a little below the level of the external os, on either side. The aim of the operator should be to insert the needle half way between the position of the normal cervix and the pelvic wall, after the needle is in the cellular tissue, the point should be slightly rotated to ascertain if it is free and had not passed into any other structure when its movement would be restricted. Having given the injections, the uterus should be placed in position and a pessary inserted and well secured to keep it up for the first few days while the effusion is forming.

The patient should lie on her face as much as possible so as to throw the uterus forward and keep it in good position. There is no pain after

the operation, there should be no rise of temperature, and, after injecting even 30 or 40 grains of quinine, symptoms of cinchonism are rarely experienced. The exact solution Dr. Paissons uses is 12 grains of the ordinary sulphate of quinine dissolved in 30 mms of dilute sulphuric acid with 30 mms of distilled water. The amount to be injected will depend on the case. The worse the case, the greater the amount required. The maximum he has used was 80 mms on each side, and the minimum effective doses for early cases of prolapse is about 40 mms.

In chronic procidentia it may be necessary to repeat the injections after an interval of a fortnight. Usually a week to ten days in bed followed by another ten days on the sofa is sufficient. A ring-pessary should then be inserted to take the weight of the uterus, when the patient can go about so long as she avoids anything throwing strain on the uterus.

At the end of three months the ligaments are usually strong enough to do without the pessary, but the full strength of the new fibrous tissue is not reached under six months. Of course, any rupture of the perinæum should be repaired, it adds much to the comfort of the patient and also, no doubt, gives strength to the parts.

One great advantage of this operation is that it does not interfere in any way with pregnancy. Of all the cases treated by this method under 35 years of age, nearly 40 per cent. of them have subsequently borne children and that too without any difficulty.

Dr. Paissons sums up—The operation is simple, takes only a few minutes to perform, is practically free from risks, causes no pain, and is more effective for its purpose than any other line of treatment.

FAREWELL DINNER TO C P LUKIS,

M D, F R C S, LIEUT COLONEL, I M S

A MOST successful dinner was held by the Indian Medical Service Officers of Calcutta, on Monday, 26th April, 1909, at the United Service Club, with the object of congratulating Colonel C P Lukis, I M S, on the honour conferred on him in being selected to officiate as Director-General, Indian Medical Service, during the absence on leave of Surgeon-General Sir Gerald Bomford, K C I E, I M S.

The dinner was got up by Lieut-Col Brown, I M S, and Major Stevens, I M S, at very short notice, notwithstanding which, no less than twenty-nine I M S officers sat down at table. Every available officer present in Calcutta came to the dinner, which, in itself, speaks volumes for the popularity of Colonel Lukis with his own Service members. Colonel G A Harris, M D, F R C P, presided, Major Bud, M D,

FRCS, acting as Vice-President A list of those present included—

Lt-Colonels—Harris, Dobson, Diuzy, Green, Vaughan, Maynard, Lloyd-Jones, Brown, Ozzard, and Jordan

Majors—Bud, Stevens, Hunter, Waters, Sutherland, and Rogers

Captains—Shillington Smith, Stewart, Lloyd, Foster, Emslie-Smith, Shaw, Connor, Denham-White, St John Moses, Owens, Zorab and McCay

The toast of "The King" having been duly honoured, Lieut-Colonel Diuzy, in proposing the health of the guest of the evening, said—

"Colonel Harris and officers of the Indian Medical Service,—The pleasant duty of proposing the toast of the evening has been allotted to me as being, of all those present here to-night, the one with the longest and oldest association with the Medical College, Calcutta, from the Principalship of which Colonel Lukis is about to sever his connection after four years of strenuous and successful work

"Our object in dining together here to-night is to offer our hearty congratulations to Colonel Lukis on the honour that has been conferred on him in being selected to take up the officiating appointment of the Director-General, Indian Medical Service. We also desire to express our thanks to Colonel Lukis for meeting us and giving us this opportunity of congratulating him and of saying good-bye

"At the present time, as Colonel Lukis takes up the reins of office, there are signs of broken weather and in the future hidden rocks and shoals may necessitate careful steering and narrow, difficult to negotiate, require careful handling, but we have the utmost confidence in our helmsman to weather them all and bring the bark I M S, safely into port

"Gentlemen, I ask you to rise and drink with me to the health of Colonel Lukis and to wish him every success and 'Bon voyage'"

Colonel Lukis replied as follows—

"Colonel Harris, Colonel Diuzy and Brother Officers of the I M S—It is with difficulty that I find words to express my feelings at the present juncture—the occasion is for me one of mingled sadness and gladness

"It would be false modesty on my part to pretend that I am not gratified at the honour which has been done me in selecting me to officiate as your Director-General during the absence of Sir Gerald Bomsford

"But, notwithstanding my gratification, I cannot avoid regarding my promotion with very mingled feelings, for three reasons—

"Firstly, because it marks the end of my career as a doctor. As you know, gentlemen, I am one of those unfortunate individuals who do not play games, and hitherto my professional work

has constituted the whole of my life. It causes me, therefore, a severe pang to give it up at the comparatively early age of 31, just when my contemporaries at home are beginning to really make their reputations

"My second reason for regret is, that I feel acutely my severance from the Medical College and the colleagues amongst whom I have spent four of the happiest years of my service. Notwithstanding the fact that I came amongst them as a stranger from the jungles of the United Provinces, they have uniformly treated me with the greatest courtesy and consideration, and have rendered me every assistance in the elaboration and development of the various schemes which were initiated by my distinguished predecessor. I can only hope that they will always bear me in as kindly remembrance as I shall them

"My third reason is that I am now about to embark upon the biggest enterprise I have yet undertaken. It would be a big plunge even in fair weather, but, as Colonel Diuzy has said, there are rocks ahead. I can only hope that I shall prove equal to the task which is before me and that I shall not be found wanting should difficulties arise during the time that I am at the helm

"Colonel Diuzy's kind words and your hearty acceptance of them encourage me to hope for the best

"I can assure you that I shall do my utmost to merit the confidence that has been reposed in me, and you may rely upon it that I shall always have at heart the best interests of the grand old service to which we are all so proud to belong

"Gentlemen, I will not detain you longer, but will merely say how deeply I appreciate the honour you have done me this evening, and beg, in conclusion, to thank you from the bottom of my heart for the cordial way in which you have received the toast of my health and for your good wishes for the future"

Major Bud proposed a vote of thanks to Colonel Brown and Major Stevens for the trouble they had taken in making all the necessary arrangements for the dinner. Colonel Brown delegated the duty of replying to Major Stevens who, in a witty little speech, accepted all the credit, but remarked that Colonel Brown had done all the work

Reviews

Diseases of the Skin and the Eruptive Fevers.—By Dr SCHAMBERG. Published by Messrs W B Saunders Co. Price, 13s. 1909

TEXT-BOOKS on skin diseases are so numerous at the present time that there would hardly seem to be room for a fresh addition to their number. This book has, however, certain

features which place it in a category by itself, and give it a claim to a position on the shelf of the physician. In the diagnosis of skin diseases the appeal is chiefly to the eye, and hence the illustrations of a book on dermatology are of special importance. In this book the illustrations are numerous and well chosen, and they consist of beautifully reproduced half-tone plates from original photographs. In most cases these give quite as good an idea of the condition as a coloured plate and they are less likely to be misleading.

The special feature of the book is, however, the section dealing with the eruptive fevers which is profusely illustrated, and which cannot fail to be of considerable assistance to those who have to distinguish between small-pox and the other conditions with which it is liable to be confused.

The book deals with the subject of dermatology from the practitioner's point of view and does not devote much space to questions of purely theoretical interest, it is thoroughly up to date and gives a brief but practical account of X-ray and Finsen treatment. Radium treatment is "damned with faint praise," and ionization does not receive any consideration at all. In dealing with syphilis there is a photograph showing the remarkable effect of two doses of staphylococcus vaccine in a case which had resisted all other treatment, but in the text there is no mention of the vaccine treatment at all. For the busy medical man who wishes to refresh his knowledge of skin diseases without the labour of reading through one of the larger books, this small text book can be warmly recommended.

Formulaire des Medicaments Nouveaux pour 1909—Par H. BOCQUILLON LIMOUSIN. Published by J. B. Baillière et Fils, Paris. Price 3 francs.

THIS handy little volume is the 21st annual edition of a book, whose purpose is to give a brief account of the more important drugs which have been introduced in recent times. It is not in any sense a year book as it gives a résumé of the literature of the past few years relating to the more modern remedies. The book has evidently attained to a great degree of popularity in France, and for those who have not forgotten their French, it can be heartily recommended.

It gives full instructions as to dosage, etc., and the drawbacks of the various drugs are stated as well as their advantages, so that the book is a useful guide to the practical man.

In connection with atoxyl, it is pointed out that solutions become altered when heated to the boiling point, so that sterilization must be carried out at a lower temperature. The dose is stated as being 5 grains given hypodermically every three or four days in a 10% solution. The book does not state what is a common belief

among dermatologists in London that the German atoxyl is more toxic than the French. This is a point worth considering in view of the fact that the drug has been used in cases of kala azar.

Chloretone is said to be useful in preventing sea sickness in doses of ten grains every three hours. There is no doubt as to the usefulness of the drug in this distressing complaint, but the dose given is too large for prolonged administration. Probably 20 grains in the twenty-four hours would suffice to keep most people in the slightly drowsy condition which renders them immune.

Hetol or cinnamate of soda is recommended in cases of tubercle in doses gradually increasing from 1½ to 15 grains daily, injected into a large muscle—the course of treatment to last about six months. Regarding scopolamine and morphia as a means of producing general anaesthesia, there seems to be a difference of opinion, but the balance of evidence seems to be favourable to the use of a single small injection followed by chloroform, the advantage being the prevention of vomiting after the anaesthetic.

A combination of thio-uramine 15 parts, antipyrine 7½ parts, and distilled water 100 parts, is said to be superior to fibrolysine as an injection for causing the disappearance of scar tissue.

Third Report of the Wellcome Research Laboratories, Khartoum.—Presented by Dr. ANDREW BALFOUR, Director of the Laboratories. Published by Baillière, Tindall and Cox. Price, 21s net.

WITHOUT in any way disparaging the contents of this book, it may be said that its chief feature is the splendid manner in which it is got up, and the great beauty of the illustrations, most of which are in colours. One cannot help instituting a comparison between the magnificent appearance of these reports and the unattractive and dingy aspect of the Scientific Memoirs published by the Government of India. This third report is, to a large extent, a continuation of the second, but owing to a fire, much of the material was lost, so that the report has been considerably curtailed. The part of the book which is of most interest to medical men is that dealing with the protozoa found in various mammals and birds in Egypt and the note on the occurrence of kala azar in the Soudan. There are other articles on poisonous snakes, on economic entomology, on native medical practices and on the ethnology of some of the tribes of Egypt.

The only drawback to the report is that it contains such a miscellaneous collection of articles that there are few people to whom more than a small portion of the volume would appeal.

Correspondence

MALARIAL URTICARIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—As the following case may be of interest to the numerous readers of your esteemed journal, I request you will allow (if you can) a little space for it in the paper.

A patient, M Kutty (Serial No 2427), a male, aged 36 and a palm climber, was admitted into my wards for "Shivering Fever" on the evening of the 4th instant. The patient had fever every alternate day from the 31st of March. On the morning of the 3rd instant (he had fever on the 2nd instant) he noticed a few swellings on the lower part of the left side of his abdomen running in a line from the anterior superior spine of the ilium to the umbilicus. He did not mind it much. But again on the morning of the 4th instant a fresh row of swellings appeared on the upper part of the abdomen on the same side starting from the 10th costal cartilage and reaching the ensiform. On admission I found the swellings, five on the lower line and four on the upper, were each about the size of a marble, oval in shape and rather hard to the feel. They involved the skin only. They had a pale central area and red margin round. The patient had a temperature of 103°F and pulse 80 per minute. I examined the blood microscopically and found Benign Tertian (*Plasmodium Vivax*) in large numbers. A dose of 20 grains of sulphate of quinine was given at the sweating stage. The next day (5th April) the fever had left him, and the swellings had disappeared more rapidly than they had come. I record this case as it is a remarkable case of "Malarial Urticaria" of which I have seen only three cases in all including the above.

GENERAL HOSPITAL, I remain, Dear Sir,
Trivandrum, 16th April 1909 Yours faithfully,

N LAKSHMANA IYER,

M B & C M,

Officer in Charge of Medical Wards

LYCETOL AND GOUT

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—Will you kindly make room for the following in your next issue?

Turning over the pages of Dr Rakhaldas Ghosh's *Materia Medica*, I came across a statement that $\frac{1}{2}$ gr of Lycetol may be injected for the dissolution of tophi in gout. Will some of the more informed readers of your journal tell me whether the statement has stood the test of experience? Has any such treatment of the tophi by lycetol or any other solvent been found effective? No standard book to my knowledge recommends treatment on similar lines. In the *Indian Lancet* I remember to have read of a clean removal of a tophus on the great toe by a surgical operation. Surgical procedure may be permissible where there is one single prominence to be dealt with. But in those with a number of tophi in different parts of the body, solvent treatment such as is suggested by Dr Ghosh would be positively a godsend, if effective. Will some of your numerous readers who have had occasion to work in this line, inform me of their experience in this matter through your columns and oblige.

LUNAWADA,
Via GODHA,
10th April 1909

Yours, &c,
INQUIRER

BLACKWATER FEVER, HÆMOLYSIS AND QUININE

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—In the February number of the *Gazette* you give a short summary of the recent work on Black water Fever by Christophers and Bentley, and you note that these authors do not support McCay's hypothesis of the part taken by the sulphates of quinine.

The evidence put forward by McCay in support of his hypothesis (*Indian Medical Gazette*, February 1908) is far from convincing. The assumption that the limiting membrane of the red blood corpuscle is impermeable is untenable. Although normally impermeable to the large hemoglobin molecule, this membrane is generally regarded as permeable to sodium, potassium, etc., and their salts. The experiments—

given in tabular form only—are too few in number and too indefinite in character. The mode of administration, dilution, fasting or otherwise, and the time that elapsed between administration and estimation of the salt concentration of the serum are not stated. As regards the quinine salts, their relative absorbability might explain the results got. According to Linz, the chloride is absorbed much more rapidly than the sulphate, so, to observe the corresponding effects of the two salts on the plasma, the serum after administration of the latter salt, would require to be examined after a longer interval than in the case of the former salt. Lastly, as acknowledged by McCay himself, the red blood corpuscles can withstand a dilution of the plasma to below 47 per cent—a point never approached after administration of the sulphates.

Osmosis explains the hæmolysis that occurs under the action of distilled water, but it does not explain the hæmolytic action of saponin, cyclamin or even the acid salts of quinine. Some of the results obtained by me while studying the hæmolytic action, *in vitro*, of quinine salts in the *Materia Medica* Department of Edinburgh University may be of interest and practical value to readers of the *Gazette*. The acid salts of quinine (bichloride, bisulphate, bihydrobromide, urea bihydrochloride) are strongly hæmolytic. Stronger still is the Indian hypodermic injection of quinine sulphate and tartaric acid. The sulphate and hydrochloride are about equal in hæmolytic power. The quinine alkaloid itself is not only non hæmolytic, it delays autolysis. Non hæmolytic salts are the arsenate, phosphate and arsenite. Quinine carbonate, in which form quinine probably circulates in the blood, is very feebly hæmolytic.

My results are very suggestive of a diminished alkalinity of the blood in Blackwater fever, and if such be found clinically, the causation and probably the peculiar distribution of Blackwater Fever would find a simple explanation.

Yours truly,

EDINBURGH UNIVERSITY, } A C MACGILCHRIST,
4th March 1909 } Captain, I M S

SPECIAL ARTICLE

ON SOME OLD EIGHTEENTH CENTURY LISTS OF THE I M S

By D G CRAWFORD,

LIEUT COLONEL, I M S,

Civil Surgeon, Hooghly

I—BENGAL

In the *Indian Medical Gazette* of September 1889, page 327, will be found an unsigned article* on the Bengal Medical Service one hundred years ago, winding up with a list of the Service as it stood on 1st May 1789, which, it is stated, had been recently discovered. The compiler has added to the list a column of remarks, showing the dates of death or retirement of the officers whose names are given in the list.

During my researches in the Record Office in Calcutta, I have come across, and taken copies of no less than five manuscript lists of the Bengal Medical Service of an earlier date than 1789, the oldest being contained in the Original Public Consultations of 30th May 1774, and so being just fifteen years earlier than the list published in the *Indian Medical Gazette* twenty years ago.

These lists may, for convenience, be named as follows—

First, the list of 1774,

* I do not know who was the author of this article.

Second, the list compiled by the Surgeon-General, Daniel Campbell, dated 5th August 1777

Third, the list compiled by (or rather for) the Governor-General, Warren Hastings, in 1777

Fourth, the list compiled by the Commander-in-Chief, Brigadier-General Giles Stibbert, dated 12th November 1783

Fifth, the list of the service in 1782, compiled by Asst Surgeons Ross and Hunter, in 1787

The compilation of these various manuscript lists, two of them by or for the two highest officers in the country, is sufficient, I think, to show that no printed or official gradation list was then in existence. The earliest printed lists I have seen are those in the half-yearly *East India Registers*. The earliest copy of this work in the Imperial Library is dated 1813. The India Office Library contains copies of the same work from about 1790. This work, though compiled from official records, by an official of the East India Company, with the Company's permission, is hardly an official publication. And, being compiled in London, the earliest issues at a time when the voyage to and from India took six months each way, the information it contains is several months behind the date of publication.

During the earlier years of the existence of the Indian Medical Service, disputes were frequent among medical officers (also among combatant officers and civilians, but these do not concern us here), as to their respective rank and seniority. Most men owed their first appointment to the Courts of Directors in London, some were appointed by the Indian Government in India. This was one fruitful source of disputes over rank. Such questions as the following frequently arose. Which ranked first, an Asst Surgeon appointed in England in January, who joined in December, or one appointed in India in July, who joined at once? Again, if one man was appointed in England in January and joined in December, and another was appointed in England in February and joined in November, which was the senior of the two? In the main, the disputes may be said to turn upon the same question, were men to take rank by date of first appointment or by date of joining? Each of the disputants always wanted a special consideration and decision of his case by the Governor-General in Council, and, if that decision was adverse to his claim, by the Court of Directors in London. Apparently, in most cases, he got it. With such questions being referred for decision from every service, we can imagine the nuisance these disputes must have been to the Government.

The list of 1774 is simply a list of names of Medical officers serving in Bengal, with remarks against a few of them. There is no accompanying document to shew why the list was compiled

The Governor General's and Surgeon-General's lists were compiled in connection with disputes about seniority. Presumably the list known as the Governor-General's was compiled for his use in his office, it is hardly likely that he could have been able to spare time to prepare it personally.

The following brief summary of the Proceedings by which these disputes were dealt with, is taken from the Calcutta Press Lists of 1777, pages 307, 320, 329.

Calcutta Original Consultations, 14th August 1777, No 4 "Letter, dated 5th August 1777, from Surgeon General Daniel Campbell to the Secretary, forwarding a list of all the Surgeons, suggesting that a Committee should be formed to settle their disputes about rank, and notifying vacancies which require to be filled."

"List of Surgeons and Assistant Surgeons on Bengal Establishment."

Original Consultations, 18th September 1777, No 1 "Proceedings held in the Revenue Department relative to the rank of Surgeons. Minute of the Governor General recommending the above letter for immediate decision, explaining the point at issue, and proposing two questions for determination. Copies of correspondence between the General Secretary and the Revenue Secretary were read, from which it appears that the licences of Surgeons often indicated neither date, nor rank, nor manner of appointment. Mr Francis' minute, that Surgeons should take rank according to the dates of their respective warrants, was approved by Mr Barwell and by the Governor General. Copy of a letter from the Revenue Secretary to the Secretary to the Board of Officers, conveying the decision of the Board, that when the licences contained no explicit information, rank should be determined by the dates of the warrants."

Original Consultations, 6th October 1777, No 5 "Letter from Secretary to Board of Field Officers, dated 3rd October 1777, enclosing their proceedings, and returning various papers."

No 6 "Minute of the Board, on the proceedings of the Board of Field Officers, comparing their general list of Surgeons and Assistant Surgeons* with the list formerly prepared by the Governor General from the different warrants and appointments of the parties."

No 7 "It was resolved to send a copy of the minute to the Board of Field Officers, and to desire them to revise the cases of Messrs Walker, Mitchell, Stormonth, and Hamilton."

"An unauthenticated list of Surgeons and Assistant Surgeons, with the different warrants and appointments, prepared by the Governor General."

In the years 1780 to 1784 the Indian Government found the Medical Department very short-handed, as, we may say, it has found it on many subsequent occasions. The first Maratha war occurred in 1780-81, the second Mysore war in 1781, the campaign against the Raja of Benares in the same year. Five battalions, under Colonel T. D. Pearce, marched from Bengal to Madras, towards the end of 1780. Six battalions, with Artillery and Cavalry, were detached to Bombay from 1778 to 1784. All these troops required extra medical officers, and vacancies caused in these campaigns required to be filled up. To indent on the Court of Directors at home for more medical officers was of little use, as new men from home, even if recruited in sufficient numbers, could not arrive

* I have not seen this list, I do not think it still exists

for more than a year after the requisition for their services was sent home. The Indian Government accordingly appointed a large number of men, recruited locally, to the Bengal Medical Service.

These men locally recruited appear to have been obtained chiefly from two sources, firstly, the Surgeons of the Indiamen trading between England and India, and, secondly, subalterns or free adventurers who had had some medical training, in some cases had practised medicine at home before coming to India.

The Court of Directors showed great displeasure at the number of these local appointments, and in a letter from Court, dated 16th March 1784, published in the *Calcutta Gazette* of 16th September, 1784, wrote as follows —

Para 10 "We disapprove the appointments made by you between the 1st January 1782 and 10th March 1783, of twenty-four Assistant Surgeons, viz "

[Here follow 23 names, not 24, as stated]

"And positively direct that on receipt of this letter you revoke the said appointments.

Para 11 "And in order to fill up the vacancies occasioned by the removal of the said twenty-four persons, we do permit twenty-six Assistant Surgeons should so many offer to proceed to India this season on the usual conditions.

Para 12 "We do permit the twenty-four Assistant Surgeons appointed by you to remain in India to practise in their profession and direct that they be reappointed to vacancies as they may happen after the said twenty-six Assistant Surgeons shall have been provided for.

Para 14 "We have further resolved that no more Surgeons be allowed to proceed till it shall be known whether their services be wanted in India, and in order to ascertain this point we direct that you regularly transmit to us statements necessary for your establishment, describing the different departments where they are to be employed, and also that you forward annually (in duplicate at least), list of Surgeons and Assistant Surgeons belonging to your Presidency.

Para 15 "And in case it should happen at any time that the establishment at one Presidency should be more than complete while that at another is deficient it is our order, that the deficiency at one settlement be supplied from the redundancy of the other. We, therefore, direct you to advise our other Presidencies from time to time of the number upon your establishment, in order for them making the necessary arrangements accordingly.

Para 16 "We have permitted the following persons to proceed to India in part of the twenty-six Assistant Surgeons before mentioned, their rank by a future conveyance "

[Here follow 22 names]

A subsequent order by the Government of India on the subject of the respective seniority of these officers, published in the *Calcutta Gazette* of 10th July 1788, runs as follows —

"The Governor General in Council is of opinion that the Assistant Surgeons nominated by the Court of Directors to supply the vacancies, occasioned by the removal of twenty-four Assistant Surgeons, as directed to take place by the General Letter of 16th March 1784, should rank before all the Gentlemen who were appointed in the country between 1st January 1782 and 10th March 1783, whether their names are specified in that letter or not, it being evidently the spirit of the

order to disapprove of all appointments made within that period.

"That the Assistant Surgeons appointed between the periods above mentioned, should rank next to those appointed from Europe, and with respect to each other, according to their original appointments in the country.

"And that the Assistant Surgeons, subsequently appointed in this country, should rank next under them again, and in respect to each other, according to the dates of their original appointments in the country.

"Agreed that the Hospital Board or Adjutant General be directed to prepare a list conformable to these resolutions, of the order in which the Assistant Surgeons appointed in the country, since the 1st of January 1782, should stand, that the same may be issued in General Orders, and their rank thereby permanently fixed.

"Ordered that the Directors be requested by the first conveyance to fix the rank of Assistant Surgeons nominated by them in the General Letter, dated 16th March 1784, and that they stand in the meantime in the order in which they are mentioned in the 16th paragraph of the above General Letter."

Among numerous other complaints and protests about the reduction in rank of the locally appointed Assistant Surgeons, two of them, James Ross and William Hunter, sent in a long memorial to the Medical Board, and to this memorial is attached the list of the Service as it stood in 1782, mentioned above as the fifth list. This memorial is entered in full in the proceedings of the Calcutta Medical Board for 6th March 1787. The list has two defects, firstly, it is of course quite unofficial and without authority, and, secondly, it was compiled five years after the date to which it refers.

All the locally appointed Assistant Surgeons, removed by the orders of 16th March 1784, did eventually get continued in the service, with the exception of one or two who died before vacancies had occurred.

In the original consultations of 9th September 1785, occurs the following undated note by the Secretary, on the Assistant Surgeons reduced.

"The Hon'ble Court of Directors, in the 12th paragraph of their General Letter, dated 16th March 1784, permit the 24 Assistant Surgeons who are ordered to be dismissed by the 10th paragraph of the same Letter, to remain in India, and direct that 'they be provided for after the 26 who are appointed to their places from England.' Of these 26, the Court of Directors have only nominated twenty-two, and there are substantial grounds to believe that no more will be nominated by them, as in the 13th Para of that Letter they mention having given Mr Morris leave to proceed to India under the same circumstances as those Assistant Surgeons who are dismissed. That is, to succeed as vacancies may occur, altho' the number they at first determined on was not complete.

"By the Surgeon General's Report it appears that the following casualties have happened since the Europe appointed Assistant Surgeons were admitted.

Gone home	Surgeons 6	Asst Surgeons 3	
Dead	"	2	3 Total) 14
The number dismissed was twenty-four, of whom			
now present			13
Gone home, Dead, Dismissed by the sentences of Courts Martial			11
			24

* Word "to" apparently omitted.

If therefore the number present, *thirteen*, were added to the Regular List in consequence of the *fourteen* casualties, the number of Surgeons and Assistants on the establishment will then be less than was the case, when the orders arrived

N B—One Assistant Surgeon wrecked in the *Hinchin brooke* has applied to be readmitted "

The order of the Board on the re-appointment of the remaining Assistant-Surgeons is the next item in the consultations. After reading letters from General Stabbeit, Colonel Peaise, and Surgeon General Ellis, the Board passed the following resolution—

"The Board having maturely considered the very unfortunate predicament of these gentlemen, that many of them served the Hon'ble Company ably and faithfully when attached to the Bombay and Carnatic Detachments, where they were subjected to the most trying and fatiguing services—that they all relinquished their former Views in Life for the purpose of entering into the Company's service, implicitly relying for Support and Subsistence on the rewards of their Abilities and Exertions—that their Reinstatement will be not only an Act of real Humanity and Justice, but also consistent with the Orders of the Court of Directors to provide for them as Vacancies shall occur, the Report from the Surgeon General proving that the Establishment even after the Admission of those remaining in the Country will be less than it was when they were reduced. Agreed therefore that Messrs Hugh Mahon, Rt Anderson, James Grant, Wm Hunter, Walter Williams, Thos Luke Stokes, Geo Davidson, John Burgh, Alexr Russell, Thos Wilkins, Wm Davidson, and Wm Cooke, be readmitted, and that the particular Circumstances of this Transaction be stated in the next Letter to the Court of Directors, whose Approbation of the measure when duly considered the Board have no doubt of obtaining "

A return of Surgeons and Assistant Surgeons gone Home and Dead since Nov the sixth 1794

Mr Urquhart	}	Gone Home
Mr F B Thomas		
Mr Jo Armstrong		
Mr Alexr Walker		
Mr Clement Francis		
Mr Robt Johnston	}	Dead
Mr Jams Hunter		
Mr George Harrison		

Assist Surgeon—

Mr Chas Browne	}	Dead
Mr Thos Minchin		
Mr Wm Smith		
Mr Robt Church		
Mr Charles Regan	}	Gone Home
Mr Charles McCra		

Dismissed From Home by the Hon'ble the Court of Directors the 16th of March 1784

Mr Hugh Mahon	}	Present
Mr Robt Anderson		
Mr Jas Grant		
Mr Wm Hunter		
Mr Walter Williams		
Mr Thos Luke Stokes		
Mr Jo Burgh		
Mr Jas Orrack		
Mr George Davidson		
Mr Alexr Russell		
Mr Thos Wilkins	}	Dead
Mr W Davidson		
Mr W Cooke		
Mr Alexr Mornie		
Mr W Cooper		

Mr Jo Shaw	}	Dismissed here
Mr W Jones		
Mr Thos Parks		
Mr Jo Lamb	}	Gone Home
Mr Jas Campbell		
Mr Thos Clark		
Mr Path Ivory		Surgeon of Valentine
Mr Thos Morris	}	Reinstated
Mr Thos Watts		

J ELLIS,
Surgeon Genl

The question of relative seniority among these officers was not finally settled until 1797. In a General Letter of 5th July 1897, published in the *Calcutta Gazette* of 1st March 1798, the Court of Directors give a list of the surviving officers of the years 1782 to 1784, most of whom had by this time reached the rank of Surgeon, and state that they are to be considered as ranked in the order now given, and that these orders on the subject are final. In the meantime, from one-third to one-half of the original parties to the dispute had died or left the country, only 51 names being given in this final settlement.

The two memorialists of 1787, William Hunter and James Ross, fared very differently in this final adjustment of rank, for Hunter stands twelfth, and Ross forty-fifth, out of the fifty-one. Both were men of some note in their day. William Hunter was born in 1755, became M A in 1777, and M D in 1805, of Marischal College, Aberdeen, was promoted to Surgeon on 21st October 1794, and to Superintending Surgeon on 19th January 1811. He served with the Bengal detachment in the second Mysore war in 1781, and at the capture of Java in 1811, and died in Java on 15th December 1812. He was the author of many works on Indian subjects, the chief of which are "A concise account of the kingdom of Pegu" (1785), and "Essay on the Diseases of Indian Seamen or Lascars, in long voyages" (1804). James Ross was born on 21st June 1759, he also was educated at Marischal College, Aberdeen, when there also took the M A in 1777, served as Surgeon's mate in the Navy in 1782, before entering the I M S, was promoted to Surgeon on 31st December 1802, more than eight years after Hunter, retired on 19th July 1804, and died at Exeter on 22nd July 1831. He was a noted Persian scholar and published a translation of the "Gulistan" of Saadi in 1823. I do not know of any war services in his case.

(To be continued)

Service Notes

OBITUARY

SURGEON MAJOR FREDERICK SAVIGNAO STEDMAN, Bombay Medical Service, retired, died at Eastbourne on 16th March 1909, aged 80. Born on 31st December 1828, he entered the I M S as Assistant Surgeon on 10th September 1853, became Surgeon on 10th September 1865, and

Surgeon Major on 1st July 1873. He has no war service in the Army List

LIEUTENANT COLONEL JOHN FRANCIS TWOH, Bengal Medical Service retired died at Brighton on 22nd February 1909. He was born on 23rd April 1851, entered the I M S as Surgeon on 31st October 1879, became Surgeon Major on 31st October 1893, and Lieutenant-Colonel on 31st October 1899, retiring on 24th June 1900. He was educated at Queen's University, Cork also partly at Dublin and Vienna, and took the degrees of M D, with Honours, and L M, in 1878 M Ch in 1879, M A O in 1899, all in the Royal University. He served in Afghanistan in 1880-81, but put in most of his time as a Civil Surgeon in the North West, now the United Provinces. Since his retirement he had practised at Hove, a suburb of Brighton.

RETIREMENTS

MAJOR CHARLES HENRY LFET PAIK of the Madras Medical Service, retired on 1st May 1909. He was born on 14th November 1866, educated at Edinburgh University, where he took the degrees of M B and C M in 1887, also the F R C S, Edinburgh, in 1932 and entered the I M S as Surgeon Captain on 28th July 1891, becoming Major on 28th July 1903. The Army Lists assign him no war service.

COLONEL DAVID WILKIE, Bengal Medical Service retired on 2nd April 1909. He was born on 27th June 1849. Educated at Glasgow University, where he took the degrees of M B and C M with Honours in 1871, and at Berlin, and entered the I M S as Asst Surgeon on 1st April 1873. He became Surgeon when the rank of Assistant Surgeon was abolished, on 1st July 1873. Surgeon Major on 1st April 1885, Surgeon Lieutenant-Colonel on 1st April 1893, and Colonel on 2nd April 1904, when he was posted as A M O of Assam. On the partition of Bengal, on 15th October 1905, he became the first Inspector General of Civil Hospitals in the new province of Eastern Bengal and Assam. He served for several years in the Jail Department in the North West Provinces, and afterwards, as Statistical Officer to the Government of India. The Army List assign him no war service. He acted as Director General, Indian Medical Service, for three months during the absence on privilege leave of Surgeon General Sir G. Bomford in 1907.

With effect from the 1st April 1909, Captain R. F. Baird, I M S, to cease to be Chief Plague Officer, United Provinces.

With effect from the 1st April 1909, Captain G. W. Macdonachie, I M S, to cease to be Assistant Plague Officer, United Provinces.

CAPTAIN C. L. DUNN, I M S, Assistant Plague Medical Officer, Gurdaspur, is granted privilege leave for 2 months and 28 days combined with furlough on medical certificate out of India for 3 months and 2 days, with effect from the forenoon of the 26th March 1909 under articles 260, 233 and 333 (a) of the Civil Service Regulations.

LIEUTENANT COLONEL J. ANDERSON, I M S, Civil Surgeon of Lucknow, is granted privilege leave, combined with furlough, for a total period of six months, from the 30th April 1909.

INDIAN MEDICAL SERVICE SPECIALISTS.—The undermentioned officer is appointed a specialist in the subject noted, with effect from the 5th February 1909—

Prevention of Disease

LIEUTENANT H. S. HUTCHISON, Bannu Brigade

MAJOR J. MULVANY, I M S, made over charge of the Presidency Jail to Major G. Y. C. Hunter, I M S, on the afternoon of the 18th March 1909.

On return from the leave of absence granted him in Punjab Government Notification No. 1014, dated the 21st December 1903, Captain G. I. Davis, I M S, resumed charge of the office of Assistant Plague Medical Officer, Delhi, on the afternoon of the 13th March 1909.

CAPTAIN F. W. SUMNER, I M S, whose services have been temporarily placed at the disposal of the U. P. Government by the Government of India, to officiate as Civil Surgeon of Bijnor, vice Captain G. Hutcheson, transferred.

CAPTAIN G. HUTCHESON, I M S, Civil Surgeon, from Bijnor to Aligarh, vice Lieutenant Colonel W. H. E. Woodwright, I M S, granted leave.

CAPTAIN W. S. WILLMORE, I M S, Civil Surgeon, from Fatehgarh to Mirzapur, vice Captain E. J. O'Meara, I M S, granted leave.

CAPTAIN G. W. MACONACHIE, I M S, to be Deputy Sanitary Commissioner, 2nd Circle, sub *pro tem*.

CAPTAIN R. F. BAIRD, I M S, to be Civil Surgeon, sub *pro tem*, of Meerut, vice Lieutenant Colonel J. Garvie, I M S, granted leave.

CAPTAIN E. J. O'MEARA, I M S, Civil Surgeon of Mirzapur, privilege and study leave, combined with special leave on urgent private affairs for a total period of eight months, from the 15th April 1909.

LIEUTENANT COLONEL J. GARVIE, I M S, Civil Surgeon, Meerut, privilege leave, combined with special leave on urgent private affairs, for a total period of six months, from the 15th April 1909.

THE undermentioned officers of the Indian Medical Service are confirmed as Civil Surgeons, with effect from the date mentioned against their names—

- | | |
|------------------------------------|-------------------|
| (1) Captain J. W. McCoy, I M S | 1st December 1906 |
| (2) Captain H. A. J. Gidney, I M S | 1st June 1907 |
| (3) Captain L. B. Scott, I M S | 1st December 1907 |

LIEUTENANT S. C. CHUCKERBUTTY, I M S, is appointed, with the consent of the Military authorities, to hold Civil Medical charge of Buva Duar, with effect from the date of his taking over charge.

THE services of Captain W. F. Brayne, I M S, on plague duty in the Punjab, are replaced at the disposal of the Government of India in the Home Department, with effect from the forenoon of the 3rd March 1909.

CAPTAIN R. KELSALL, M B, I M S, is appointed to the Civil Medical charge of the Magwe District, in place of Military Assistant Surgeon Culpeper, transferred.

CAPTAIN H. W. LILIUS, I M S, to officiate as Civil Surgeon of Fatehgarh, vice Captain W. S. Willmore, I M S.

LIEUTENANT COLONEL W. H. E. WOODWRIGHT, I M S, Civil Surgeon, Aligarh, privilege leave, combined with special leave on urgent private affairs for a total period of six months, with effect from the 22nd April 1909, or subsequent date.

CAPTAIN W. C. H. FORSTER, M B, I M S, is appointed to the Professor of Pathology, Medical College, Lahore, with effect from the date on which he assumes charge of that office.

CAPTAIN J. G. P. MURRAY, I M S, reported his departure from India on leave on the 25th March 1909.

CAPTAIN W. F. BRAYNE, I M S, is placed on special duty in connection with plague in the Pegu Division with effect from the date on which he assumed charge of his duties. Captain Brayne's head quarters will be Rangoon.

LIEUTENANT COLONEL R. J. BAKER, M A, N D, I M S, was appointed to be substantive *pro tem* Deputy Sanitary Commissioner, Sind Registration District, in addition to his own duties, from the 25th to 27th November 1908.

With effect from the 1st March 1909, consequent on the retirement of Lieutenant Colonel T. H. Sweeney, I M S, Civil Surgeon, 1st class, Lieutenant Colonel J. J. Pratt, I M S, Civil Surgeon, 2nd class, to be Civil Surgeon, 1st class.

CAPTAIN R. D. MACGREGOR, I M S, has passed the prescribed test in the Shan language.

MAJOR M. DICK, I M S, has received an extension of leave of six months.

WITH reference to Rule 3 of the Rules contained in General Department Notification No 301, dated the 7th August 1908, Captain L A H Lack, I M S, is invested by the Government of Burma with all the powers conferred on the Deputy Commissioner by the abovementioned rules

ON being relieved of the Civil Medical charge of the Magwe District, Captain E A Walker, I M S, is transferred to Rangoon and posted to plague duty under the Sanitary Commissioner, Burma

THE Commander in Chief in India is pleased to make the following appointments—

Divisional Staff—Colonel C F Willis, I M S, to be Principal Medical Officer, 5th (Mhow) Division, *vice* Colonel W G H Henderson, I M S, retired

Brigade Staff—Colonel M W Keim, British Service, to be Principal Medical Officer, Bareilly and Garhwal Brigades, *vice* Colonel O E P Lloyd, V C, V H S, British Service, transferred

Colonel W A Corke, I M S, to be Principal Medical Officer, Karachi Brigade, *vice* Colonel H B Briggs, I M S, retired

THE services of Major F H Watling, M B I M S, are re placed at the disposal of His Excellency the Commander in Chief in India

CAPTAIN T C RUTHERFORD, M D, I M S, whose services have been placed temporarily at the disposal of this Administration by the Government of India, Home Department Notification No 134 dated the 5th February 1909, is appointed to officiate as Civil Surgeon, Bilaspur

THE services of Captain R H Lee, M B, I M S, are placed temporarily at the disposal of the Government of Eastern Bengal and Assam

CAPTAIN H INNES, I M S Civil Surgeon, on return from leave, is posted to Cooch, with effect from the date on which he took charge from Captain W Tarr, I M S

CAPTAIN R W KNOX, I M S (Madras), an Agency Surgeon of the 2nd class, is posted, on return from furlough, as Residency Surgeon, Gwalior, with effect from the 13th January 1909

THE Viceroy and Governor General has been pleased to make the following appointments on His Excellency's personal staff—

To be Honorary Surgeon

COLONEL C F WILLIS, M D, I M S, *vice* Colonel W G H Henderson, F R C S I, retired

CAPTAIN J D GRAHAM, I M S, on completion of his special duty, to officiate as Civil Surgeon of Etawah *vice* Captain C Dykes, granted leave

THE services of Captain W H Cox, D S O, I M S, are placed temporarily at the disposal of the Government of Burma for employment in the Alienists' Department

ON his return from leave Major J Penny, D P H I M S, is appointed to the Civil Medical charge of the Myingyan District, in place of Major W G Pridmore, M B, I M S, transferred

CAPTAIN L A H LACK, I M S, is transferred from Rangoon to Mandalay and is placed on duty in connection with the suppression of plague

CAPTAIN R T WELLS, M D, I M S, is appointed (*sub pro tempore*) to the Bacteriological Department and acts as Assistant to the Director, Central Research Institute

CAPTAIN J S O'NEILL, I M S, joins the Jail Department, U P

HIS Excellency the Governor of Bombay in Council is pleased to appoint Lieutenant Colonel H W Stevenson, I M S, to be Surgeon General with the Government of Bombay, *vice* Surgeon General J P Griem, M D, retired

LIEUTENANT COLONEL D T LANE, I M S, on return from furlough, was posted as Civil Surgeon to Sialkot

ON leaving Simla, Major R Heard, I M S, was posted to Lyallpur as Civil Surgeon

LIEUTENANT COLONEL F C PEREIRA, I M S, was permitted to return to duty before the expiry of his leave

MAJOR C H L PALK, I M S, returned to duty on 6th January 1909

THE services of Lieutenant-Colonel R W S Lyons, M D, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

LIEUTENANT COLONEL P J LUMSDEN, I M S (Bengal), an Agency Surgeon of the 2nd class, is posted as Residency Surgeon at Hyderabad, with effect from the 5th January 1909

LIEUTENANT F STEVENSON, I M S, is, with the consent of the Military authorities, appointed to hold Civil Medical charge of the Manipore State, in addition to his Military duties, with effect from the afternoon of the 16th January 1909

COLONEL J McCLOGHRIE, F R C S (I), I M S, was substantive *pro tem* Surgeon General with the Government of Bombay from 1st October 1908 to 10th January 1909, both days inclusive

CAPTAIN R STEPHEN, I M S, on plague duty at Gorakhpur, to officiate as Civil Surgeon of Mainpuri

CAPTAIN A W OVERBECK WRIGHT, I M S, whose services have been placed at the disposal of the Punjab Government by the Government of India, to plague duty at Azamgarh and Ballia

LIEUTENANT COLONEL R J MARKS, I M S, Civil Surgeon of Saharanpur, is granted privilege leave, combined with furlough, for a total period of one year eight months and eleven days, from the 8th of February 1909

THE services of Captain R M Barion, I M S, are placed temporarily at the disposal of the Government of Bombay

THE services of the undermentioned officers are placed permanently at the disposal of the Government of Bombay—

Captain G McPherson, M D, I M S
Captain E F G Tucker, I M S
Captain C C Murison, I M S
Captain W M Houston, M B, I M S
Captain A G Saigent, I M S

THE services of the undermentioned officers are placed temporarily at the disposal of the Government of Bombay—

Captain A J V Betts, M B, I M S
Captain B B Paymaster, I M S

INDIAN MEDICAL SERVICE SPECIALISTS—The following officers are appointed specialists in midwifery and diseases of women and children, with effect from 1st January 1909—
1st (Peshawar) Division Lieutenant H W Acton
8th (Lucknow) Division Captain A J V Betts

MAJOR C H BENSLEY, I M S, is appointed Superintendent, Central Jail, Multan Captain R M Dalziel, I M S, is appointed Superintendent, Central Jail, Lahore

ON completion of his special duty Captain E J O'Meara, I M S, returned to Mizapur as Civil Surgeon

MAJOR R BIRD, C I E, M D, F R C S, I M S, Professor of Surgery, Medical College, and Surgeon, College Hospital, Calcutta, is granted privilege leave for three months with furlough out of India for three months in continuation, with effect from the 6th May 1909

MAJOR F O'KINEALY, I M S, is appointed to officiate as Professor of Surgery, Medical College, and Surgeon, College Hospital, Calcutta, during the absence on leave of Major R Bird, C I E, M D, F R C S, I M S, or until further orders

MAJOR J G HULBERT, I M S, Civil Surgeon on return from leave to Muttra

LIEUTENANT COLONEL J J PRATT, I M S, Civil Surgeon, on return from leave to Lucknow

INDIAN MEDICAL SERVICE.

Lieutenant Colonel to be Colonel

Aylmer Martin Crofts, C I E

Lieutenant to be Captains

John Francis Boyd (provisionally)
Vernon Northwood Whitmore

To be Lieutenants

Reginald Broughton Lloyd, M B, Archibald Campbell Munro M B, Ram Nath Chopra M B, Alfred Geddes Tressider, M B, Gordon Cray Jolly, M B, Hugh Stott, M B, Alister

Aigyll Campbell McNeill, M B, Robert Long Gamlen, Abdus Sattar Khan, George Frederick Graham, M B, Maneck Dhunishaw Wadia, Taylor David Murison, Sohrab Shapoorji Vazifdar, John Joseph Harper Nelson, M B, Edward Selby Pipson, M B, Fleet Floyd Strother Smith, M B, Sureswar Sunkai, Arthur Joseph Symes, M B, Gerald Lewis Colhoun Little, M B, Thomas Crawford Boyd

THE undermentioned officer has been granted leave —
Lieutenant Colonel Little, I M S, extension for six months on medical certificate

THE services of Lieutenant Colonel R James, M B I M S, are replaced temporarily at the disposal of His Excellency the Commander in Chief in India

THE services of the undermentioned officers are replaced at the disposal of His Excellency the Commander in Chief in India —

Captain H C Buckley, M B, I M S
Captain W H Boalch, I M S
Captain C H Reinhold, I M S
Captain V N Whitmore, I M S

THE services of Captain C A Godson, I M S, Officiating Medical Officer, 48th Pioneers, are placed at the disposal of the Government of Madras for employment in the Jail Department

CAPTAIN H A J GIDDFY I M S, Civil Surgeon, Goalpara, is allowed privilege leave for one month, under Article 260 of the Civil Service Regulations, with effect from the 31st March 1909

CAPTAIN C E SOUTHERN, I M S, District Plague Medical Officer, Ludhiana, has obtained privilege leave of absence for 1 month and 15 days under Article 260 of the Civil Service Regulations with effect from the 15th May 1909 on the subsequent date from which he may avail himself of it

LIEUTENANT COLONEL S H HENDERSON, I M S, Officiating Inspector General of Prisons, United Provinces, is allowed privilege leave, combined with special leave on urgent private affairs, for a total period of six months, from the 24th April 1909

LIEUTENANT H HAY THORBURN, I M S, assumed charge of the Civil Medical duties of Chakdara on the afternoon of the 22nd of March 1909, relieving Lieutenant Colonel J W Rodgers, I M S

LIEUTENANT S G STEELE HOUGHTON, M B I M S, assumed charge of the Civil Medical duties of Chakdara on the afternoon of the 24th of March 1909, relieving Lieutenant H Hay Thorburn, I M S

HIS Excellency the Governor in Council is pleased to make the following appointments —

LIEUTENANT COLONEL B B GRAYFOOT, M D on return to duty, to act as Civil Surgeon, Karachi, vice Captain R M Barron, I M S, and during the absence on leave of Lieutenant Colonel R J Baker, M D, I M S, or pending further orders

CAPTAIN R M BARRON, I M S, on relief, to act as Civil Surgeon, Nasik

MAJOR S EVANS, M B, M Ch, I M S on relief, to act as Surgeon in charge Gokaldas Tejpal Native General Hospital, Bombay, vice Captain E F G Tucker, M R C P, L R C P, I M S, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Lieutenant Colonel W E Jennings M D, D P H I M S, on completion of his special duty, to act as Civil Surgeon, Poona, vice Lieutenant Colonel W H Burke, M B, I M S, proceeding on leave, pending further orders

LIEUTENANT COLONEL C MACTAGART, I M S, on return from leave, to resume charge of the office of Inspector General of Prisons, United Provinces

CAPTAIN I J URWIN, M B, I M S, on general duty at the Medical College Hospital Calcutta, is appointed to act as Civil Surgeon of Champaran, with effect from the afternoon of the 20th March 1909 during the absence, on deputation of Lieutenant-Colonel J G Jordan, M B, I M S, or until further orders

THE undermentioned officer has been granted by His Majesty's Secretary of State for India extension of leave for seven months —

LIEUTENANT COLONEL E R W CARROLL, I M S, Civil Surgeon, Eastern Bengal and Assam

FOURTH grade Hospital Assistant No 756 Lekh Nath assumed charge of the Civil Medical duties of the Tochi Valley, Mianshah, on the afternoon of the 31st of March 1909, relieving Captain F E Wilson, I M S, granted 6 months' combined leave

FOURTH grade Hospital Assistant No 756 Lekh Nath assumed charge of the Medical duties of the Northern Waziristan Militia on the afternoon of the 31st March 1909, relieving Captain F E Wilson, I M S

THE Lieutenant Governor is pleased to make the following appointments, postings and transfers —

LIEUTENANT COLONEL D M DAVIDSON, I M S, Civil Surgeon, Delhi, is deputed temporarily on special duty to Bombay

CAPTAIN A S M PEBBLES, I M S, 18th Lancers, to officiate as Civil Surgeon, Delhi, in addition to his own duties

CAPTAIN G I DAVIS, I M S, to act as District Plague Medical Officer

LIEUTENANT V B GREEN ARMYTAGE is appointed special 1st in Midwifery and diseases of women and children, 8th (Lucknow) Division, with effect from the 21st February 1909, vice Captain A J V Betts, Indian Medical Service, transferred to civil employment

CAPTAIN G FOWLER, I M S, Civil Surgeon, Wardha, is transferred to the Akola District

UNDER Section 6 of the Prisons Act, 1894, as applied to Berar, the Chief Commissioner is pleased to appoint Captain G Fowler, I M S, Civil Surgeon, Akola, to the executive and medical charge of the Akola District Jail

MAJOR A W T BUIST, I M S, made over charge of the duties of Superintendent of the Gurdaspur district jail to Lal Kishan Chaud on the afternoon of the 27th March 1909

LIEUTENANT COLONEL D M DAVIDSON, I M S made over charge of the duties of Superintendent of the Delhi district jail to Mr F Bryne, I C S, on the forenoon of the 29th March 1909

MAJOR G MCI SMITH, I M S, made over charge of the duties of Superintendent of the Jhelum district jail to Rai Bahadur Thakur Doss on the afternoon of the 31st March 1909

THE services of Lieutenant-Colonel C P Lukis, M D, I M S, Principal and Professor of Medicine, Medical College, Calcutta and First Physician, College Hospital, are placed at the disposal of the Government of India in the Home Department, with effect from the 1st May 1909

IN supersession of Notification No 1395-II/193, dated 25th March 1909, Captain J N Walker, I M S, Civil Surgeon, is transferred from Azamgarh to Lucknow

THE services of Captain J H Horton, D S O I M S, are placed temporarily at the disposal of the Government of Bombay

LIEUTENANT COLONEL R N CAMPBELL, M B, I M S, is confirmed in the appointment of Inspector General of Civil Hospitals Eastern Bengal and Assam, with effect from the 2nd April 1909

LIEUTENANT COLONEL E C HARE, I M S, Sanitary Commissioner, Eastern Bengal and Assam, is granted privilege leave for one month and twenty days, with furlough for four months and ten days and study leave for three months in continuation, with effect from the 22nd April 1909

THE following promotions are made, subject to His Majesty's approval —

Majors to be Lieutenant Colonels, 30th March 1909 —

Farlie Russell Ozzard
Adam Rivers Steele Anderson, M B
John Telfer Calvert, M B
William Symonds Percival Ricketts, M B
Charles Malcolm Moore, M D
Edgar Jennings
Arthur Gervase Hendley
George William Jenney, M B
Charles Tilson Hudson

PRIVILEGE leave for three months, in combination with leave on private affairs for three months, under Articles 233 (ii),

260 and 316 of the Civil Service Regulations, is granted to Lieutenant Colonel R B Roe, I M S, Civil Surgeon, Nagpur, with effect from the 7th May 1909 or the subsequent date on which he may avail himself of it

LIEUTENANT COLONEL A BUCHANAN, I M S, Civil Surgeon, Amraoti, is transferred to the Nagpur District

THE Chief Commissioner is pleased to appoint Lieutenant Colonel A Buchanan, I M S Civil Surgeon, Nagpur, to be Superintendent, Lunatic Asylum, Nagpur

CAPTAIN J C S OXLEY, I M S, Civil Surgeon, Seoni, is transferred to the Amraoti District

UNDER section 6 of the Prisons Act, 1894, as applied to Berar, the Chief Commissioner is pleased to appoint Captain J C S Oxley, I M S, Civil Surgeon, Amraoti to the executive and medical charge of the Amraoti District Jail

CAPTAIN E F G TUCKER, M R C P, L R C P, I M S, is granted, from the date of relief, such privilege leave of absence as may be due to him on that date and eight months' study leave, in combination with furlough for such period as may bring the combined period of absence up to one year

THE services of Captain N H Hume, M B, I M S, are placed temporarily at the disposal of the Government of Eastern Bengal and Assam for employment in the Jail Department

THE services of Captain C C O Shaw, M B, I M S, are placed temporarily at the disposal of the Government of Burma for employment in the Jail Department

MAJOR CHARLES HENRY LEET PALK, M B, F R C S E, Indian Medical Service, Madras, is permitted to retire from the service, subject to His Majesty's approval, with effect from the 1st May 1909

THE Lieutenant Governor is pleased to make the following appointments, postings and transfers —

MAJOR A W T BUIST, I M S, Civil Surgeon Gurdaspur, is transferred to Dalhousie with effect from 7th April 1909

CAPTAIN H M MACKENZIE I M S is transferred from Lahore Medical College to Simla as Health Officer and Simla District Plague Medical Officer *vice* Capt I O H Leicester, I M S

LIEUTENANT COLONEL D M DAVIDSON, I M S, returned as Civil Surgeon to Delhi relieving Captain PEEBLES, I M S, on 8th April

MAJOR R HEARD, I M S, made over charge of the duties of Superintendent of the Lyallpur District Jail to Military Assistant Surgeon H V W Cox on the afternoon of 12th April 1909

CAPTAIN J D GRAHAM, I M S, on completion of his special duties, to officiate as Civil Surgeon of Bulandshahr

MAJOR J M CRAWFORD, I M S Civil Surgeon, Benares, to hold visiting medical charge of Azamgarh

CAPTAIN H ROSS, I M S, Assistant Plague Medical Officer, Jullundur, is granted privilege leave for 27 days combined with furlough on medical certificate out of India for 5 months and 3 days, under articles 260, 233 and 308 (a) of the Civil Service Regulations, with effect from the 23rd April 1909 or the subsequent date from which he may avail himself of it

CAPTAIN C E PALMER I M S, whose services have been temporarily placed at the disposal of the U P Government by the Government of India to officiate as Superintendent, Central Prison, Benares, *vice* Lieutenant Colonel W H Gray, granted leave

CAPTAIN W W JEUDWINE, I M S, Assistant Plague Medical Officer, Rawalpindi, was transferred in the same capacity to Multan, where he assumed charge of his duties on the forenoon of the 24th March 1909

LIEUTENANT COLONEL W H GRAY I M S, Superintendent, Central Prison Benares, is granted privilege leave, combined with furlough for a total period of six months, from the 29th April 1909

LIEUTENANT COLONEL A BUCHANAN I M S Officiating Civil Surgeon, 1st Class, is confirmed in that class, with effect from the 25th March 1909, *vice* Lieutenant Colonel A Silcock, I M S, Civil Surgeon, 1st Class, retired

MAJOR P F CHAPMAN, I M S, Civil Surgeon, 2nd Class, is appointed to officiate as Civil Surgeon, 1st Class, with effect from the same date, *viz.* 25th March 1909, *vice* Lieutenant Colonel J L Poynder, I M S, on leave, and until further orders

CAPTAIN M F REANEY, I M S, Officiating Civil Surgeon, Mymensingh, is allowed privilege leave for three months under Articles 250 (a) and 260 of the Civil Service Regulations, with effect from the 4th May 1909, or any subsequent date on which he may avail himself of it

ON return from leave, Captain H A J Gidney, I M S, is posted to Mymensingh as a temporary measure during the absence on leave of Captain M F Reaney, I M S, or until further orders

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

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Original Articles

STUDIES REGARDING PATHOGENIC AMOEBAE *

By STAFF SURGEON DR H WERNER,
Of the Imperial Protectorate Troops in German South West Africa

TRANSLATED BY W D SUTHERLAND M D,
MAJOR, I M S

[We publish the following translation for the convenience of those of our readers who may not have easy access to the original] —

THE Morphology of the Amœbæ which are pathogenic to man has been studied by many of the older writers. I need here only mention the work of Loesch, Kruse and Pasquale, Councilman and Laffeu, Kartulis, Barbagallo and

nuclear relations of the vegetative form of the organism

Comparison of his own preparations with those of Viereck soon convinced him that the latter's *E tetragena* was his own *E africana* and that therefore this name might give way to that. In actual practice the nuclear characteristics of the vegetative form of *E tetragena* are of much more importance than the points of difference in the conditions of its reproduction for the former may be observed in any specimen of the vegetative form, whereas it is but seldom that its mode of reproduction can be studied.

During the last six months I have made careful observations of 12 cases at the Hamburg Hospital. Of these in 3 there was *histolytica* infection and in 9 *tetragena* infection. The latter may be classed, according to the origin of their infection thus: Far East 3, Further India 4, Central America 1, East Africa 1. Of the

CORRIGENDUM

In our June number, on page 202, in the thirteenth line from the top of the second column—for "cannot be carried out in the tropics" read "cannot be carried out easily in the tropics"

former, which is harmless, from the latter which is pathogenic to man. Then it was that studies, based on Schaudinn's work, of the morphology of the amœbæ of the human intestinal tract, were capable of advance. The first fact noted was the frequency with which the innocuous *E coli* is found. Ashburne and Craig found that 71 per cent of the soldiers examined by them in Manila were its hosts. Further observation made regarding pathogenic amœbæ showed that besides Schaudinn's *E histolytica* there exists another pathogenic amœba, which is separable from both *E histolytica* and *E coli* on consideration of its morphology, and conditions of reproduction. From a study of an amœba which he found in cases at the Hamburg Institute for tropical hygiene Viereck concluded that this amœba, which, on the grounds of the arrangement of the components of its nucleus, he had first placed in the *coli* group, did really belong to a new species to which he gave the name of *E tetragena*, because in its encysted persistent stage it has four nuclei. Quite independently of Viereck, Hartmann had expressed his opinion, based on the study of a series of cases of dysentery contracted in Africa, to the effect that in addition to *E histolytica* there existed another species of amœba pathogenic to the human subject, and after thorough study of its nuclear relations he was enabled to differentiate this amœba, which he named *E africana*, from *E histolytica*, this differentiation having been made more certain by observation of the

E tetragena in my cases bears out in all important points the assertions of Hartmann. Especially characteristic of *E tetragena* are the cyclical appearances to be observed in the karyosoma, which I have shown in Figures 1—7. Owing to the separation of the peripheral part of the karyosoma from the central constant centriola, we have the latter surrounded by a clear space, whose size varies. Now and then we may see the following phenomenon—the chromatin masses of the karyosoma move further out towards the nuclear membrane, and—since in the meantime the cyclical change originating in the centriola has again occurred—we have now two more or less concentric circles visible between the centriola and the nuclear membrane, in place of the former single circle limiting the clear space (Fig 7). From time to time the clear space around the centriola is not clearly visible and then the karyosoma appears merely as an extensive undifferentiated disk, instead of a ring-like mass enclosing a central nucleus (Fig 2).

Phenomena of reproduction—I have observed fission into two, and in one field I think that I have seen simple division of the nucleus by constriction, the centriola first and then the rest of the karyosoma being divided, the division of the karyosoma being followed by that of the rest of the nucleus (Figs 8 and 9). In other cases we have the formation of a nuclear spindle, within which may be seen a central spindle, which has come into being through division of the centriola (Fig 10). The next stage of division is the appearance of a two-nucleated vegetative form (Fig 11). I have also seen a

* Supplement No. 11 of the *Archiv v. Schiffs und Tropenhygiene*

exist between the two amœbæ as to their pathogenicity on transference *per rectum*, neither in the number of passages possible nor in the frequency with which these can be made, nor in the duration of incubation, nor the mortality, nor the duration of actual sickness, nor the *post mortem* appearances. The only case in which experimental rectal infection with a stool gave rise to a liver abscess was one of *tetragena* infection.

Besides rectal transference, oral transference was also tried in cats. These experiments, one cat with *tetragena* and three cats with *histolytica*, gave negative results, at any rate in no case were living amœbæ found in the intestinal canal of the animals, which were fed with a mixture of milk and amœba-containing stools. In three cases also the dried stools of a cat affected with *histolytica* dysentery were given, with the results that the cats so fed died after a few days, but no living amœbæ and no marked dysenteric change in the bowel were found in them *post mortem*. These were sickly kittens whose death cannot be attributed to successful infection by transference. Successful infection of cats with the stools of cats suffering from dysentery Schaudinn's positive results show to be possible, and recently Craig has attained very successful results by the same method.

He saw typical dysentery occur in 55 per cent of the cats that had been infected *per os*, while only 50 per cent of infections *per rectum* were successful.

Transference of infection from man to cat, and from cat to cat was often vitiated by simultaneous transference of *trichomonas intestinalis*, whose exorbitant growth apparently interfered with the amœba infection, if it did not entirely prevent it. Cats infected with *trichomonas* sickened with severe diarrhoea, the stools containing blood and mucus, and in many cases I think that this diarrhoea was the cause of death.

Besides cats, a few guinea-pigs and rats were made the subjects of experiments of transference of amœbæ, but always without success. Nor did success attend the direct injection of matter from a dysenteric stool into the liver of a guinea-pig, after the manner of Musgrave and Clegg's experiment on a monkey.

I would also mention a series of experiments done with a view to verify the possibility of cultivating amœbæ pathogenic to man, which possibility has been asserted by Musgrave and Clegg and by Walker. These experiments were carried out by transference of fresh stools containing amœbæ on to culture material, especially fucus-agar, and the results were absolutely negative in no case did I succeed in causing a multiplication of the vegetative forms of *histolytica* or *tetragena* that were present in the infective matter. But on the other hand I often found growth and encystment of *Amœba limax* on the culture material, and from Musgrave and

Clegg's illustrations I am convinced that these observers—as well as Walker who obtained his cultures from them—grew nothing but *A. limax* on their culture material and that it is this that they have described. It is certain that by cats, and probably man too, very often the encysted forms of *A. limax* are swallowed with the food, and traverse the intestines, to be excreted, in a condition still capable of undergoing development, along with the fæces. Only thus is to be explained the fact that even when cultures are made under perfect aseptic conditions from the stools of man or of cats on to suitable culture material, *A. limax* is so often developed.

A. limax, regarding which Vahlkampf's researches deserve our praise, is in its vegetative form characterised by the presence of a contractile vacuole, which is never found in amœbæ that are pathogenic to man, in its persistent form it is characterised by its peculiar circular cysts with double contour, and these cannot be mistaken for the cysts of *E. coli* or *E. tetragena*. The cultivation outside the body of amœbæ pathogenic to man has, then, not yet been carried out beyond all doubt.

The passage of cysts of *A. limax*, which we must assume to occur along the intestinal canal of cats, and probably also along that of man—and not infrequently too, I have been able to observe as occurring along the intestinal tract of the common house-fly. Dr. Nocht induced me to carry out these experiments, as he was of opinion that it was possible that the formation of cysts in the case of *E. histolytica* which is scarcely ever observed in the fæces (of the patient) might occur in the case of flies, as the result of the action of the contents of their stomach, when the flies had swallowed amœba containing fæces. The possibility—nay more, the probability—that flies play a part in the spread of dysentery, stimulated one to experiment in this direction. The technique of the experiments is fairly simple and easy to carry out. It is easy to induce house flies that have been placed in a glass beaker to drink a drop of milk mixed with fæces, when this is introduced into the beaker. The fæces of the flies are easily obtained by dissection, or by causing defecation by stroking the fly's abdomen with a suitable instrument, such as a probe or needle. Often when the fly recovers from the anæsthetic it lives on, and may be frequently used as a source of fæces for examination.

The fæces of flies normally contain cocci and bacilli, with detritus and fat globules in large quantity. The experiments and their results may be briefly described as follows—

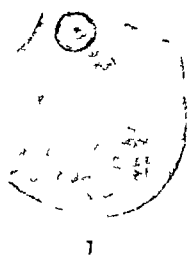
(1) Feeding with portions of the stool of a man suffering from dysentery, the stool containing vegetative forms of *E. histolytica*. After 3 to 6 hours the fæces of the flies were examined. No further development of the amœbæ was observed to have occurred.

STUDIES REGARDING PATHOGENIC AMŒBÆ

By STAFF SURGEON DR H WERNER,

Of the Imperial Protectorate Troops in German South West Africa

TRANSLATED BY MAJOR W D SUTHERLAND, M D, I M S



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STUDIES REGARDING PATHOGENIC AMŒBÆ

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STUDIES REGARDING PATHOGENIC AMŒBÆ

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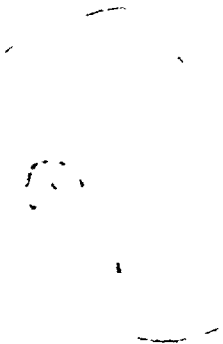
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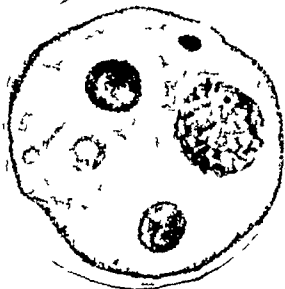
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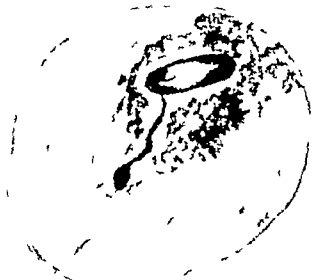
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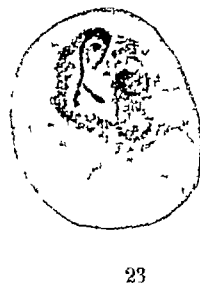
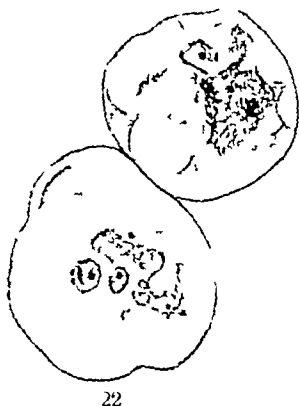
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STUDIES REGARDING PATHOGENIC AMŒBÆ

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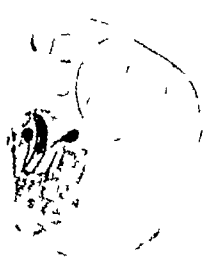
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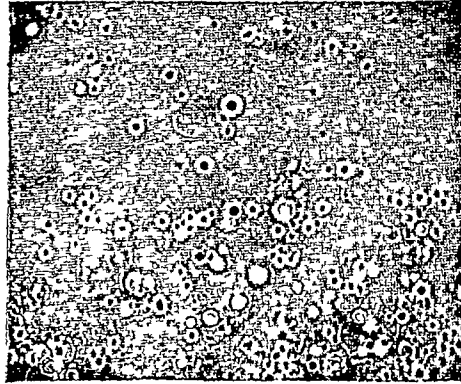
STUDIES REGARDING PATHOGENIC AMŒBÆ.

By STAFF SURGEON DR H WERNER,

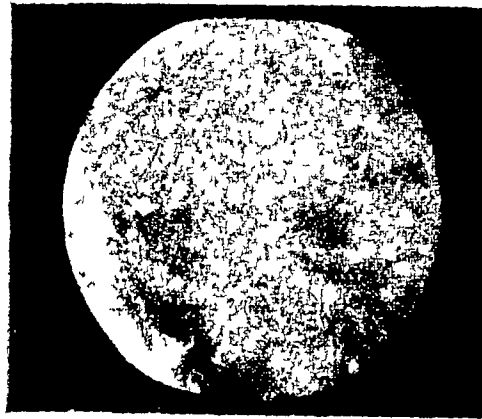
Of the Imperial Protectorate Troops in German South West Africa

TRANSLATED BY MAJOR W D SUTHERLAND, M D, I M S

Encysted
form

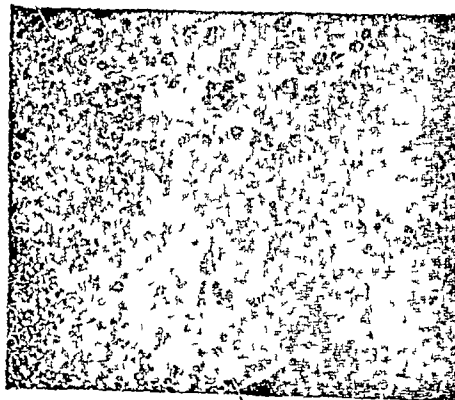


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Line of division between
encysted and vegetative
forms



38

(2) Feeding with vegetative forms of *A. limax*. After three to six hours neither vegetative nor encysted forms of *A. limax* could be found in the intestinal canal of the flies.

(3) Feeding with encysted forms of *A. limax*. After a few hours the unchanged encysted forms could be detected in the flies' intestinal tract and in their faeces. Sections of the flies so fed showed the encysted forms lying in the lumen of the intestine. The contents of the intestines of these flies were at once transferred to fucus-agar, and after 48 hours vegetative forms of *A. limax* could be detected in great number on the culture material.

It was not, then, possible to prove that further development of amœbæ pathogenic to man occurs in the intestinal tract of the house-fly. Nor was the change from vegetative to encysted form during passage along the fly's intestinal tract observed in the case of *A. limax*, but it was proved by experiment that the persistent forms of this amœba pass unchanged along the fly's gut, and are, after being excreted, capable of undergoing further development in artificial culture media.

These experiments bring forward no proof of the spread of dysenteric material by means of the intestinal tract of the fly, but until they were carried out, it was not proved that this means of spread is impossible. We now stand in need of experiments as to infection of cats by the intestinal contents of flies that have absorbed the amœbæ that cause dysentery, and also of experiments carried out with other flies that are to be found in the tropics.

* * * *

Explanation of Plates

The plates were made from drawings of the field shown by a 2-mm Zeiss oil immersion lens, aperture 1.30, and compensation eyepiece No. 12. These were reduced to half natural size for reproduction —

Figs.

- 1—15 *E. tetragena*
- 1 1a Typical nucleus
- 2 Centriola not distinguishable from other structures
- 3—7 Cyclical phenomena in the karyosoma
- 8 Division of the karyosoma
- 9 Simple division by constriction of the nucleus
- 10 Spindle
- 11 2 nucleated vegetative form
- 12 Degenerative form
- 13 Chromid containing form—the nucleus cannot be seen
- 14 Chromid containing form
- 15 4 nucleated vegetative form
- 16—35 *E. histolytica*
- 16, 17 Typical nucleus
- 18 Cyclical phenomena in the nucleus
- 19 Swelling of the nucleus
- 20 Division of the karyosoma
- 21 Spindle
- 22 2 nucleated vegetative form
- 23, 24, 25 Formation of chromids from peripheral chromatin of nucleus
- 26, 27 Short comma shaped chromids

Figs

- 28, 32, 33, 34 Long thread-like chromids with club like swelling
- 29, 31 Chromid formation, in which apparently the karyosoma takes part
- 35 Copulation?
- 36 Encysted form of *A. limax* in faeces of house-fly
- 37 Encysted form of *A. limax* in intestinal canal of fly section stained with Iron hæmatoxylin
- 38 Culture of *A. limax* in fucus-agar. The photograph was taken of that part of the culture where the encysted and vegetative forms met. At the centre of the culture there were only encysted forms, and at its periphery only vegetative forms, to be seen.

PRE-MUTINY JAIL ADMINISTRATION

BY CAMPBELL DYKES,

CAPTAIN, I.M.S.,

Civil Surgeon, Etawah

MANY of the readers of the *Indian Medical Gazette* are concerned with the management of jails, and some of them may be interested in a few extracts from two old volumes discovered by chance in a heap of rubbish in a jail godown. The first volume consists mainly of the "Report of the Inspector of Prisons on the management of the jails from 1845 to 1851 and on the present state of jail discipline in the North-Western Provinces," the second is "A Manual of Jail Discipline and Economy" issued in 1863 but containing circulars of 1847 and subsequent years. The Report for 1845—1851 is submitted by "W. H. Woodcock, Esq., Inspector of Prisons, N-W P." and I regret that I have no further information about his career than may be obtained from these volumes. That he was an enthusiast who applied his mind to all aspects of prison work is shown by the mass of heterogeneous material he incorporates with his report. In addition to appendices on Prison Construction, Diet Scales, Scumvy, Prison Guards and Solitary Cells, he has no less than four appendices on ventilation, forming together a complete treatise on the subject worthy of a Manual of Hygiene and reprints *in extenso* an 18-page report from a prison chaplain on the "Separate system" as applied at Pentonville for the moral reformation of prisoners confined there.

Woodcock was appointed Inspector of Prisons of the N-W Provinces in December 1844 with instructions to visit each jail at least twice in the course of the year. The total number of jails was 33 including those of five districts now incorporated with the Punjab. After he had held the appointment some fifteen months he was placed in addition in charge of the Agia Jail "in order that you may introduce into that jail with greater ease and certainty the reforms that you may consider expedient, and it will also afford the Government a better opportunity of judging of the value of any measures you may wish generally to enforce in other places of confinement."

We may infer, perhaps, that during his first fifteen months of office, the new Inspector had somewhat alarmed the local Government by the extent of his innovations. Be that as it may, he points out in 1851 in a memorandum to Government that the itinerant duties of an Inspector are totally incompatible with the satisfactory management of a prison of 3,000 convicts, and that the latter duty is "quite sufficiently arduous to require the whole and unremitting attention of a single European Superintendent and far too onerous and responsible in every way to be thrown on any young and inexperienced officer that can be found who has also other duties to perform," and as regards medical oversight, that "if 800 to 1,000 prisoners were considered a sufficient charge for one medical officer, how much more is that of 3,000 beyond what any medical officer with other civil charges and constant calls can efficiently attend to. My firm conviction is that the medical duties of the jail require the sole, whole and devoted attention of the medical officer in whose hands above those of any other, the duties of Superintendent could be more efficiently combined." "and my six years' experience as Inspector and personal acquaintance with every member of the civil and many of the medical and military services," he goes on to say, "only admits of my naming one man, Dr J P Walker, the Civil Surgeon of Mynpooree, whom I think qualified to hold such appointment," and whom he proceeds to recommend for the post of Deputy Superintendent of the Agra Prison at a salary of Rs 700 per mensem.

The first point on which comparison with the present may be of interest is financial. "The average total cost per prisoner per annum was 37-12-7" for the seven years, 1845—1851, but the cost per head shews a steady fall from Rs 44-4-7 in 1844 to Rs 33-10-6 in 1851, for which the Inspector naturally takes due credit. This jail (Etawah) in the latter year shewed almost the lowest expenditure of all, the by no means extravagant charge of Rs 13-1-8 per head exclusive of, and Rs 27-9-2 including, establishment and repairs. Compare with this the average under the same heads for 1907, Rs 63-7-0, for all the jails in the United provinces.

The question of total cost per head leads naturally to that of diet scales and cost of diet. A circular of 1840 had prescribed a uniform scale of 20 oz atta, 4 oz dal, 225 to 450 gr salt, 68 gr red pepper, 65 gr of tobacco and 247 gr of ghi, with 2 lbs of fuel, vegetables were to be given in lieu of dal three times a week. But between 1840 and 1845 out of 33 jails, 19 jails had departed from this scale increasing it by from 2 to 8 oz of atta. Some had three scales of 28, 24, 20 oz, others two of 24 and 20 oz, 4 oz of dal being given in all cases.

A fresh circular was, therefore, issued by Woodcock laying down the following scale—20 or 16 oz atta (boys, women and non-working

prisoners 16 or 14 oz), 4 oz dal, 67½ gr of salt, 36 gr of pepper, 12 or 16 oz fuel, with 4 oz of vegetables and 45 gr oil twice a week in lieu of dal. But the Inspector complains that "at the close of 1849 or 1850 the diversity in the rates of dietary was even greater than it had been before the rates of 1847 were fixed" and a return of 1851 shews that only fourteen jails had not added to the standard allowance. Tobacco was still issued and ghi instead of the prescribed mustard oil, though, as the Inspector very justly remarked, "ghi is an article of luxury very few prisoners have even tasted before their imprisonment" "which is to a very great extent, if not wholly, either sold or bartered for tobacco or drugs or to furnish the means of gambling or for bribing the guard."

Great divergence of opinion appears as to the amount of salt necessary to health, a question not yet perhaps beyond the stage of controversy. Thus, in 1845, a prisoner in Gujraon received 96½ grains and one in Allahabad 450, in 1851 a prisoner in Aligarh received 50 grains, one in Muzapore 240. The Fatehgarh ration dropped from 225 grains in 1845 to 60 gr in 1851, while that of Almorah rose from 225 in 1845 to 450 in 1851. On the whole, however, between these two years the amount was reduced. Most jails in the earlier year gave 225 gr, while in the later, the usual ration was about 120 gr. The larger allowances were, no doubt, utilised in much the same way as the ghi and tobacco—if the prisoners ever received them which is open to reasonable doubt. Tobacco was definitely prohibited in 1852. The allowances of fuel appear enormous—in 1845 usually 24 or 32 oz and in 1851, 16 or 24 oz, though some still gave as much as 32. The explanation is to be found partly in the system of separate cooking for "messes" of 20 to 25 prisoners—partly, perhaps, in the cheapness of fuel, though on this point I can find no figures. Kanaujia, Kashmiri and Chaube Brahmins were allowed to cook for themselves, but were usually required to cook also for other prisoners.

In 1852 Woodcock's scale was made compulsory by the Local Government. The only permissible addition was "an allowance of two chhitaks of Chabenhah (parched grain) to each labouring prisoner when recommended by the Civil Surgeon," with this addition the ration amounted to 14 chhitaks of dry grain of which 4 consisted of pulse—an ample supply of nitrogenous food.

The average cost of diet varied in 1845 from Rs 13-12-6 in Budaon to Rs 26-3-6 in Dehra, and in 1851 from under Rs 7 a head in Hamirpur, Etawah and Bulandshahr to about Rs 16 in Muzapore, Jaunpur, Gorakhpur and Almorah. The average was Rs 11-2-6 or 5½ pie per diem.

The average cost per head in 1907, was Rs 32-4 for all the jails of the United Provinces.

The arrangements for the supply of clothing were both extravagant and utterly subversive

of discipline. One full suit of clothing was issued to every prisoner alike every half year, with one blanket and one blanket coat at the commencement of the cold season. Any article of clothing issued to a prisoner was considered his personal property, none was ever returned to store, nor was any found serviceable at the end of six months. The result was that new clothing issued was never worn but instantly sold or bartered to guards, fellow prisoners, or friends outside. One particularly "glaring instance" is given from Agra: "Some years since a prisoner of the Buneeah caste who left jail with the value (amounting the aggregate to between Rs 300 and 400) of several hundred *dhotees*, *pugrees*, blankets, etc., which he had from time to time purchased for a trifle or obtained in exchange for drugs from his fellow prisoners, with this sum he (*sic*) married his daughter on his release from prison." "The clothing of prisoners was even made a perquisite to the *Umlah* of the *Foujdary* courts of many *zillahs* who were supplied every cold season with one or two blankets a piece." Under this system the cost of clothing varied from Rs 1-15 to Rs 5-15 per head per annum. By a circular of 1847 a six-monthly issue was abolished and clothing issued as required, but the Inspector regrets that "having no power to enforce my suggestion in many *zillahs*, the rule is a dead letter."

As regards "employment" most of the familiar jail handicrafts of to-day appeared in the returns, and paper-making was also done on a small scale. One interesting point is a note to the effect that there were "30 prisoners learning Hindi and 14 prisoners making cartridges at the Agra Jail."

But out of a total strength of 14,000 to 16,500 (excluding "lifers" and females), "public gardens" claimed 4,000, district roads, 5,000 and "Executive Engineers" 500, shewing that 9,500 prisoners were employed on extramural labour.

The "proportion of sick per cent on strength" fell from 147.88 in 1845 to 95.08 in 1851, and the death-rate per cent from 8.9 to 4.85. In 1897 the figures for the U. P. were—admission rate 60.8 and death-rate 1.5.

This is how the Civil Surgeon of Agra described the diseases which prevailed in that jail in 1850—

"During the hot season, acute fevers prevail with cases of *coup de soleil*, particularly in very hot seasons when the rains are late in commencing. The fevers generally yield to an emetic and purgative followed by an antimonial laxative with regulated diet for a few days, a few more severe cases require local depletion, and mercurials with cold affusion followed by blisters. In *coup de soleil* the most powerful remedy is the cold douche. Steps have been constructed in the bathing room to increase the height of the fall of water from the *bheesties'* *mussool*. From two to six *mussocks* of water

rarely fail to restore consciousness, and reaction is regulated by depletion and mercurial purgatives.

"During the rainy season fever with a periodical type and bowel complaints are prevalent. The fevers are occasionally very obstinate. Quinine and arsenical solution are very beneficial. An obstinate diarrhoea sometimes supervenes which is generally fatal. The bowel complaints are treated by local depletion with a combination of ipecacuanha, blue pill, gentian and assafoetida and a *sheerbat* made from the *Bharl ghree*.

"During the rainy season slight abrasions are apt to become sores which on several occasions have taken on a sloughing character evidently contagious and sometimes fatal."

"There are generally a few sporadic cases of cholera in the hot season and after the rains have ceased. They are treated with a combination of opium, assafoetida and black pepper in the form of a pill, and when collapse has supervened, the same medicines are given in a liquid form combined with ammonia, with mustard poultices to the stomach."

A circular of 1847 sanctions a salary of Rs 14 per mensem for a "native doctor over out-lying gangs." A Government order of 1832 had fixed the consolidated (?) pay of a native doctor at Rs 8 per mensem, the balance was provided by the reduction of a *moharrir* (?) compounder on Rs 8, "the latter not being required," and in this way a saving will be effected of Rs 2 per mensem. The native doctor was also granted a travelling allowance of annas 2 a mile.

Faults of construction in jail buildings were numerous. The Inspector specially condemns "parallel blocks"—"numerous external openings" (one jail had five separate entrances and ten other external openings) "cross walls and sheds abutting on main walls" "Sentry boxes situated on the main walls and approached by a flight step."

The insecurity of main walls led to a great expenditure on iron gratings to barracks, "a fruitless expense, for the thickest iron bar is not proof against the friction of a cotton thread and corundum." Jailor's houses consisted "in some cases of one single room over the entrance without any other convenience of any kind." In other cases they were situated "in the central yard." As might be imagined—in consequence of the faulty construction of jail buildings and the extent to which extra-mural labour prevailed—escapes were numerous. An appendix with a tabular statement makes this clear. The average number of escapes from the 33 jails between 1844 and 1851 was 143, of 817 prisoners who escaped 332 remained at large. Moradabad in 1847 returned as many as 34 escaped and Agra in 1846 no less than 68. In the former instance 27 of the 34 were working in the jungles and "in order to work them with better effect one non of each had been struck

off" In the latter "the outer wall of Agra jail only 12 feet high and that not intact was easily scaled by an armed party of 50 men who effected the daring rescue of Doongursingh and the release of 51 prisoners"

Most jails appear to have been furnished with solitary cells, and in the construction of these the Inspector took great interest. In 1848 a catechism containing 43 questions was propounded to District Magistrates and Civil Surgeons as to the use made of these cells and the effect on those incarcerated in them to be answered in the utmost detail. "Cells 10 feet \times 12 \times 8 without the smallest aperture for ingress or egress of air were occupied during 14 or 15 hours by four or five prisoners" (The exact meaning of the sentence is rather obscure). The cells generally attached to the jails "have consisted of two rooms each 12 \times 12 \times 10 = 1,440 cubic feet," places in pairs one behind the other, the outer communicating freely with the yard, the inner devoid of any opening except the door by which it was entered from the outer cell and called appropriately enough the condemned cell.

Many of the arrangements with which we are now familiar are warmly advocated in this report as improvements on the then existing conditions—the "circular" or "radiating" arrangement of wards against "parallel" system, one large central well in place of one in each ward or a pair of wards, cells built in rows with open yards on one or both sides instead of in pairs. The plan of barrack recommended is an oblong building of burnt bricks and mud cement 100 \times 18 \times 16—with a kunker floor, a roof of "S" tiles on sal battens with a ventilation aperture 2 feet wide running the whole length of the roof. The plan shews a grated door at each end and seven large grated openings on each side.

The familiar "S" tile was then a novelty, being "somewhat modified from the shape of a tile introduced into the Shahjahanpore jail by Mr. C. Thornhill," "the manufacture of which had been introduced into many of the jails of the N.-W. Provinces "as a useful and profitable mode of employing the prisoners." They were supplied to the public at Rs. 10-8 per 1,000, and evidently recognised as a great improvement on existing patterns.

To shew the great importance attached by the Inspector to free ventilation, his 80-page appendix may be again referred to. In it he quotes Priestly, Gay-Lussac and many other authors and experimenters and works out, by the help of dynamical formulæ, rules to regulate the necessary amount of space per head according to the rate of in-flow and out-flow. The needs of dwelling-houses, churches, schools, hospitals, prisons are all considered and the letterpress is followed by 20 pages of illustrations and diagrams.

In a circular of 1847, 400 cubic feet is laid down as the irreducible minimum air space per

head in calculating the capacity of jail barracks "until greater accommodation can be afforded." Overcrowding in excess of the standard was to be dealt with by placing prisoners in tents or sheds or in any available public building or in the hot season in the open yards on a 'belchain'. For hospitals a minimum of 600 cubic feet per head was prescribed, and for solitary cells 1,365 cubic feet. The question of ventilation was not taken up a day before it had become necessary. We read that there were wards in the prisons "so overcrowded as to allow the occupants frequently less than six superficial feet to lie upon and in some instances scarcely sufficient room to sit upon." Some of these wards had no openings but the doors which were either "closed by the prisoners to exclude the rain and storm or by the jail officers to prevent the prisoners from cutting through the bars and effecting their escape." In one instance where apertures for ventilation existed, they had been "purposely closed by the Civil Surgeon's order to exclude the air."

Besides the ventilation of barracks, conservancy was a subject that engaged the close attention of the Inspector. "The mode of cleansing almost universally adopted up to the end of the year 1845 was to sweep the evacuations from the necessaries in the yards, and the night privies attached to the wards through the drains running round the wards and thence through and round the yards a distance varying in each jail with very few exceptions from 2,000—4,800 running feet of drainage or superficial feet of brick and mortar drain." "This filthy stream, on finding its exit through the walls of the jail, ran through the ground at the back and sides of the buildings till it found its way into some low ground in the neighbourhood or open pool, or in some instances into the ditch which surrounded the jail." The effluvium from this 'necessary evil' was, "as one may well believe," quite sickening, no one approached the jail but with repugnance, and it is needless to say how many officers were deterred from paying it their official visits. "Night privies attached to wards are in every respect most objectionable," "as a fixed structure the night privy blocks up the only opening at one end of the ward any portion of which within 20 feet is rendered quite untenable."

The Magistrate of Allahabad thus describes the night privies in that jail—"They were not attached to the ward as in some jails, but were built at the corner of each ward about 20 feet from the main building. They were nothing else but small rooms about 12 feet long by 6 wide with a flat roof and flooring of brick work and *chunam*. In these privies the convicts generally were wont to relieve themselves before they went to labour in the mornings, and as one privy of the kind was attached to two sets of wards containing at the lowest computation 128 convicts, the difficulty in performing the operation

in a clean spot must have been rather considerable. They could never be properly cleaned, and it was quite out of the question going near them to see that they were so." By the Inspector's orders "61,600 running feet of *pucca* drain" was removed, other means provided for storm water, and a new pattern of stone latrine or privy introduced consisting of a pair of parallel drains V-shaped in section, each leading into a "moveable naund" from which the filth was removed daily and emptied into a covered cesspool outside the walls which, when full, was covered in with mortar.

In lieu of "night privies" in jail "when the prisoners cannot be allowed to adjourn during the night to the privies in the yard," (!) earthen pans were placed in sand in the centre of the ward.

In connection with these important innovations, opinions were asked for (and are here published in an appendix) from Magistrates and Civil Surgeons as to the effects on the amenity and salubrity of the jails. All with three exceptions were favourable to the change. They may be epitomised in the words of the Magistrate of Gorakhpur: "There can be no comparison between carrying of all the filth of the jail bodily and throwing it away at a distance and the old system of stinking privies and almost equally offensive drains."

At the same time it appears clear that in this matter as in matters of diet and clothing the Inspector had very little actual authority over the management of individual jails. The District Magistrate, specially if supported by the opinion of the Civil Surgeon, was able to defy or evade, as appears in several instances, the recommendations or "instructions" of the Inspector of Prisons.

The report does not throw much light on the internal economy of a jail. There existed, however, a form of dual control. The "Rules for a Prison Guard" informs us that, "as the safe custody of the prisoners within the jails is vested in the officer commanding the guard, the stationing of the sentries is to be regulated by him." "The cleanliness and distribution of the prisoners in the yards and wards by night and day rest with the jailor, but the guarding and safe custody of the prisoners within the walls of the jail by day and by night shall be the duty of the jail guard." "The native officer of the guard with a nak and four shall accompany the darogah, and turnkeys on locking up at night, and unlocking in the morning, noting down on a 'tuktee' the number of prisoners in each ward and the total number in the jail. After the prisoners have been locked up for the night, the keys of the outer wicket shall be lodged with the officer commanding the guard and the keys of the wards and cells with the jailor."

The number of the "contingent guard" was laid down for each jail according to local circum-

stances, and the pay ranged from Rs 5 for a sepoy to Rs 30 for a subadar. The advantage of substituting intra-mural for extra-mural employment is clearly recognised in a circular of 1854. The proportion of guards to prisoners in outside gangs was one to five and inside the jail one to ten or more, and by a circular of the following year the economy resulting from the smaller number of guards required is utilised to raise to Rs 6 and Rs 7 per mensem, the pay of those "contingent barkandazes" employed exclusively within the jail, who now formed a separate "intra-mural contingent or discipline guard."

The pay of a "barkandaz" in 1861 appears to have been only Rs 4 per mensem (for extra-mural work) for in that year the Local Government authorises its increase to Rs 5, where owing to increased intra-mural employment of prisoners the number of guards was reduced.

For every 10 barkandazes there was to be a daffadar on Rs 10, and for every 20 a jamadar on Rs 15, "and whenever the number of working prisoners permanently confined within the jail exceeds 250, there shall be a higher grade of officer to whom the general supervision of the workshops shall be entrusted."

The permanent guard of the jail is stated to be appointed solely for the following purposes — "Escorting under-trials to and from court, escorting transports from one district to another, escorting treasure or other municipal purpose at the requisition of the civil authority." But the whole expense was borne by the jail budget and the guard was entirely subordinate to the Inspector of Prisons in every respect. But shortly after the Mutiny, at any rate as early as 1861, police guards were lent "for watch and ward of jails, *i.e.*, to guard the jail itself and be present to suppress any émeute on the part of the inmates," the cost being debited against the jail concerned.

THE EXTRACTION OF THE LENS IN ITS CAPSULE (SMITH'S OPERATION) BY DIVISION OF THE SUSPENSORY LIGAMENT

By V B NESFIELD, F.R.C.S.,

CAPTAIN, I.M.S.,

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THE removal of the lens in its capsule for cataract does appear on account of its thoroughness and cleanliness to be the ideal operation, especially so in India, as one does not often have an opportunity of removing opaque capsule should it occur.

But, personally, I have found the operation difficult to perform and, moreover, dangerous as a persistent attempt in a stubborn case leads to escape of the vitreous.

In every case of cataract I have tried to remove the lens in its capsule but have only succeeded in about one out of every ten cases.

Perhaps, I should rather say that I have been afraid in nine cases out of ten to use sufficient force, the one case being that one in which the gentle force applied has ruptured the suspensory ligament.

That is to say, that the patients I have had to deal with possess nine strong suspensory ligaments to one weak one.

To overcome this difficulty, latterly, I have divided the suspensory ligament and the results have been excellent.

The operation.

Having made the incision and done the iridectomy, a cystotome is passed between the iris and the lens till its point is well beneath the iris and beyond the circumference of the lens in its capsule.

The instrument, which has been passed with its cutting point directed outwards, is now turned so as to divide the suspensory ligament.

The point is swept round the circumference of the lens so as to divide the inner, lower and outer portions of the ligament.

The cystotome is then again turned so that its point may look side ways and escape damaging the capsule.

It is now carefully removed.

The lens with its capsule will now be found to be free on three sides and a very little pressure will deliver it.

But, should the upper and remaining portion of the ligament still offer a dangerous amount of resistance to the delivery of the lens in its capsule, then the presenting "cataract," should be grasped with the fixation forceps. This ruptures the capsule, the greater portion of which is carried away in the forceps while the lens is very readily delivered.

ALYPIN WITH SPECIAL REFERENCE TO ITS HITHERTO UNDESCRIBED CYCLOPLEGIC ACTION

By W. E. SCOTT MONCRIEFF, M.D.,

MAJOR, I.M.S.

I BEGAN to use alypin when I returned from furlough in 1905 and since then I have done 150 cataract extractions and many other eye operations under alypin anaesthesia. I have come to the following conclusions regarding its anaesthetic action. In these operations I used a one or two per cent solution. I now use it in four per cent solution.

Conjunctiva—Alypin has less anaesthetic effect on the conjunctiva than it has on the cornea and iris, thus a second and third instillation causes as much smarting pain as the first instillation, and sub-conjunctival injections cannot be made painlessly under alypin anaesthesia.

In performing extractions of the lens under alypin anaesthesia I have often observed that

the patient winces as the section is being finished, especially if the knife is blunt, this is probably due to the pulling of the forceps on the imperfectly anaesthetised conjunctiva. Further, the effect of alypin in diminishing pain in the active treatment of trachoma and allied conditions is disappointing. Even pure alypin in powder has little effect in such cases and in itself it causes pretty severe pain. Maynard has noted this imperfect action of alypin on the conjunctiva (*I M G*, Feb 1906).

I no longer use alypin for extractions as I consider cocaine to be better.

Cornea—The effect of alypin on the cornea is fully equal to that of cocaine, it causes no oedema of the cornea nor shedding of the corneal epithelium as cocaine sometimes does and it acts more rapidly than cocaine. It is thus eminently suitable for operations on the cornea, such as cauterization and the removal of foreign bodies and for the examination and treatment of sensitive eyes.

Iris—On the iris the anaesthetic effect of alypin seems to be slightly less than that of cocaine. I have used it for many iridectomies, but have returned to the use of cocaine for this operation.

Interstitial injection—When it is injected hypodermically, the anaesthetic effect of alypin appears to be equal to that of cocaine and for hypodermic use it has two advantages over the latter. It acts much more quickly and it is not dangerous as cocaine undoubtedly is.

I have found few references to alypin in ophthalmological literature. Lieutenant-Colonel Maynard had a short note on it in the *I M G* of Feb 1906, and he mentions having done a number of extractions of the lens under alypin anaesthesia.

In the American Journal of Ophthalmology of November 1907, Frank, of New York, wrote an article on it. He quotes several cases in which a four per cent solution gave perfect results. These included operations for chalazion, trachoma and strabismus, but only one cataract extraction.

In that excellent book "Leçons de thérapeutique oculaire" by Dr. A. Darricq, of Paris, there is a very good chapter on local anaesthetics. For six months Darricq entirely replaced cocaine by a 4% solution of alypin in one of his wards. His findings are much the same as those I have noted. He considers that though alypin is sufficient for simple extraction a cocaineisation of at least twenty-five minutes or else a sub-conjunctival injection of alypin is necessary for an iridectomy. He recommends the sub-conjunctival use of alypin for iridectomy in glaucoma where cocaine is contra-indicated by reason of its mydriatic action, but he records one case of this kind in which the alypin caused marked dilatation of the pupil. He sums up by saying "For my part I shall in future use alypin or stovaine, which I consider almost identical, in

all cases where an anaesthesia of short duration is sufficient. When infiltration anaesthesia is required I shall use the same substances in equal doses with cocaine."

After reading Daniel's interesting book I observed the effects of alypin more closely and made the following experiments with it. I find that it sometimes has a weak mydriatic effect and further that when exhibited by the mouth or by hypodermic injection it is a powerful cycloplegic. So far as I know this action of alypin on the accommodation has not hitherto been recorded.

Experiment I—On my own right eye which is emmetropic, range of accommodation 5 D

5-26 p.m., a 4 per cent solution of alypin instilled—this caused considerable smarting pain, 40 seconds later cornea quite anaesthetic. Conjunctiva still sensitive to prick of a needle. 5-29 2nd instillation. Smarting as before. 5-30 conjunctiva still sensitive to pricking except towards inner canthus where it is partly anaesthetic,—feeling of tightness in the eye. 5-31 3rd instillation. Smarting as before. 5-32 conjunctiva still sensitive and congested. 5-35 conjunctiva towards inner canthus anaesthetic. 5-36 4th instillation burning as before. 5-40 5th instillation. Smarting less. Cornea in centre anaesthetic, towards limbus only partially so. 5-45 6th instillation. Smarting moderate, slight mydriasis. 5-50 distinct mydriasis. 6, 7th instillation. Smarting as at first. Cornea and conjunctiva anaesthetic. Accommodation unaffected. 6-5 seem to be looking through a faint blue film, No 1, Jaeger read at 20 cm, i.e., range of accommodation = 5 D. 6-12, No 1, Jaeger read at 22 cm, i.e., accommodation = 4.5 D. Conjunctiva internally still insensitive. Externally painful on pricking. 6-20, No 1, J read at 25 cm, i.e., accommodation = 4 D. Cornea sensitive centrally, peripherally partially anaesthetic. 6-25 conjunctiva sensitive all over. 6-30, cornea and conjunctiva almost normal as to sensation, still marked mydriasis.

No further tests made. The eye remained red part of the following day. From this experiment it seems that accommodation is partly paralysed even by the instillation of a 4 per cent solution.

Experiment II—On myself, 2-25 p.m. alypin gr 1 in water $\frac{5}{11}$ by the mouth. 3-20 difficulty in reading small print. 3-27 difficulty in reading ordinary print. 3-45 power of accommodation returning.

Experiment III—On myself, 3-34 p.m., alypin gr 11 in solution by the mouth. 3-55 commencing weakness of accommodation. 4-3 cannot read ordinary sized print at normal distance. 4-14 accommodation seems to be completely paralysed.

No further observation till 5-30 when the power of accommodation had returned.

Experiment IV—On myself, 9-30 p.m., alypin gr 1 hypodermically. 9-35 can with a + 15 D

lens read No 4 J with difficulty at 20 cm. 9-37 cannot read No 4 J at all even with the + 15 D lens. A few minutes later accommodation completely paralysed. No further observation till shortly after midnight when power of accommodation had returned.

Experiment V—On hospital assistant Mahomed Fayaz Khan, age 36, previous examination by retinoscopy showed both eyes to have hypermetropia -15 D. Near vision, reads J 4 at 46 cm. 11-38 a.m., alypin gr $\frac{3}{4}$ in 18 minims of water hypodermically. 11-48 cannot read J 4 at all. 12-5 can again read J 4. We were about to repeat the dose when the experiment was unfortunately interrupted. These experiments are, I am aware, imperfect. They were made in the Kurram Valley N-W Frontier Province where only about two per cent of the population are literate, so that material for such observations is scarce. The few refraction cases I see here are, if illiterate, diagnosed objectively with the ophthalmoscope and, if advisable, fitted with glasses after a subjective test with the graduated test dots.

Recently while I was in Kasauli Colonel Semple, Director of the Central Research Institute, kindly made some experiments for me to ascertain the minimum lethal dose of alypin for the rabbit. The experiments were as follows: a four per cent solution was used.

1st rabbit weighing 990 grams, received 3 c.c. equal to 216 grains, clonic spasms came on in 15 minutes and death occurred in 52 minutes.

2nd rabbit weighing 920 grams, received 2.5 c.c. equal to 18 grains. Death occurred in 33 minutes.

3rd rabbit weighing 970 grams, received 1.5 c.c. equal to 108 grains, death in 45 minutes.

4th rabbit weighing 1,040 grams, received 1 c.c. equal to 72 grains in 14 minutes had clonic spasms which passed off in about 10 minutes and the rabbit recovered.

5th rabbit weighing 1,000 grams, received 5 c.c. equal to 36 grains. No ill effect noticed.

According to these experiments then the minimum lethal dose for a rabbit is about 1 grain.

In the B.M.J. of 27th March 1909 there appeared a report from the pharmacological laboratory of Cambridge University on the local anaesthetics recommended as substitutes for cocaine. In the case of alypin and cocaine the following results were obtained.

Minimum lethal dose for rabbit of 1,000 grams, using a ten per cent solution.

Alypin from 18 to 23 grains.

Cocaine from 2.4 to 3 grains.

According to these observations alypin is distinctly more toxic than cocaine, but this finding is at variance with the conclusions formed from clinical experience. All of us who have used cocaine much for producing local anaesthesia have seen unpleasant symptoms follow the injection of quite small doses. I

have even seen toxic effects from several instillations of a four per cent solution in the eye. On the other hand, I have neither seen nor heard of any unpleasant symptoms from the hypodermic injection of alypin. I have frequently seen it stated of alypin that it is "very much less toxic than" "much less toxic than" "only half as toxic as" cocaine. This point evidently requires further investigation. Can it be that alypin is more toxic than cocaine for the rabbit and yet less so for man? Again is it possible that idiosyncrasy is common for cocaine and for alypin uncommon? If one grain of alypin is lethal for a rabbit, is one grain a safe dose for an adult man? Judging from my own experience I would say yes, but when we consider cocaine the case is different, here we have a minimum lethal dose of over two grains for the rabbit and half this quantity is unquestionably dangerous for man.

To return to the question of the effect of alypin on accommodation. If I am not peculiar in my reaction to alypin it appears to me that here we have a cycloplegic which has the following advantages over any drug now in use for the paralyzing of accommodation: 1st, it produces a complete paralysis of accommodation in a very short time, 2nd, the effect passes off quickly, 3rd, it has little mydriatic effect—none apparently when used internally or hypodermically. Those two latter points—the short duration of the paralysis and the absence of mydriasis—are of such importance in the diagnosis of errors of refraction (and refraction cases it is calculated from some 80 per cent of practical ophthalmic work in civilised countries) that this effect of alypin at least merits further investigation.

It may be found that other allied substances of less toxicity have a similar action. I am going to test the effect of alypin on accommodation when instilled in strong solutions and in powder form and I shall carefully observe its effects when used hypodermically. Perhaps the question will be investigated by observers who have more knowledge of pharmacology and better facilities for making experiments than I have.

A BURMAN BORED WELL

BY W G KING, M.B., C.I.E.,

COLONEL, I.M.S.

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THE Burman has a decided adaptiveness in respect to mechanical arrangements. An interesting instance of this is found in the village of Yenangyaung, near which are the richest petroleum wells in Burma. These wells are bored by the Burma Oil Company, with all modern appliances and usually under American supervision. The villager has watched the process, and has come to the conclusion that he

can make bored wells for domestic water purposes, with, however, somewhat less elaborate mechanism. Instead of the rope communicating its jarring motion to the chisel, the Burman utilizes a bamboo staff aimed at the end with a piece of sharp iron, in the form of a garden spud. With this, in any soil but that which is interrupted by rocks, he is able to penetrate with little labour a sufficient depth to reach subsoil water. He starts work by squatting on his haunches with the aimed bamboo, and by a hammering motion loosens the soil, so as to make an opening of about six inches diameter. The soil is removed by the hand, so long as it is of a depth thus manageable. As the depth increases, it is an easy matter to tie additional bamboos so as to prolong the working tool. Beyond the length of the arm, the problem arises as to how he is to remove the earth without the aid of the mechanical advantages of a "shell," as ordinarily used for boring. This is overcome in a very simple manner, by using a bamboo of somewhat considerable diameter, and not so old as to be exceedingly rigid, split at the end in several places for a distance of three or four inches. A piece of bamboo is then thrust transversely through the split ends, so as to force them to gape. The result is an artificial hand, which is capable of grasping the excavated soil at the bottom of the boring, by reason of the resiliency of the bamboo, or, in other words, the spoil is caught within the cone-shaped frame-work formed of split bamboo, by reason of its being thrust with some force over the excavated spoil. By thus alternately using his bamboo with the chisel end for his excavation and his ingenious spoil remover, the villager is able to reach depths of over 30 feet, and certainly could go much lower, if necessary. To prevent the boring falling in, it is lined by teak planks being forced down it, so as to take a square form. It is obvious however that having made the boring and reached water, there remains difficulty in bringing it to the surface. Evidently if the water is to be drawn by hand from a six inch boring, the vessel must be very narrow. For this purpose, the principle of the "shell" employed for removing spoil in bored wells is imitated. A narrow tin cylinder, open at both ends and of about three feet in length, is formed. The lower end is guarded by a cone-shaped flanged opening, with the base of the cone to the exterior. On the top of this cone-shaped opening, in the interior, there is placed a cotton bag containing sand. This bag is provided with a special cord, which is separate from that from which depends the tin cylinder destined to fulfil the function of a bucket. To draw up water by this arrangement, the cylinder is lowered into the bored well and, on its being felt that the stratum of water has been entered, the cord holding the bag of sand is slightly lifted, so as to enable the water to rush in,

before the cylinder is withdrawn, by relaxing the sand bag cord, the opening is closed—thus imitating the action of a valve. On withdrawing the cylinder, there is of course some leakage, but the sand bag, on the whole, fulfils its function well, and water can be withdrawn by this method as rapidly as by an ordinary bucket. The Buiman, as a result of his observation of the boring of petroleum wells, obviously has excogitated a cheap method of reaching water-bearing strata for domestic purposes, which represents many sanitary advantages over the ordinary open masonry well. Such sanitary criticism as it is open to, in respect to the use of a cylinder and ropes liable to contamination, could be remedied by the insertion of pumps into the boring—thus securing the advantage of Norton's tube wells with more readily removeable suction pipes.

SPECIAL REPORT OF THE MEDICAL COLLEGE HOSPITAL FOR 1908

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(Continued from June)

PART II—SURGICAL CASES—

- (12) Analysis of 35 cases of tetanus
- (13) Cystitis due to bilharzia disease
- (14) Two cases of popliteal aneurysm
- (15) A case of aneurysm of the common carotid artery (with photograph)
- (16) Analysis of 20 cases of intestinal obstruction
- (17) A case of Brown Sequard paralysis following a stab wound in the back
- (18) Two cases of paralysis following head injury
- (19) Notes on cases of rhinosporidia linealy
- (20) Cases of cut throat
- (21) A case of multiple osteomata of the skull (with two photographs)
- (22) Special report of the X ray department (with six skiagrams)

(12) TETANUS

Thirty five cases of tetanus were treated during the year. An analysis of these is appended—

Age		Race, &c		Occupation	
Under 5	3	Hindu	26	Coolie	10
5-15	4	Mahomedan	5	Beggar	2
16-25	7	Eurasian	2	Baker	2
26-35	7	Indian Christian	1	Cobbler	1
36-45	10	Chinese	1	Weaver	1
46-50	3			Water carrier	1
51 & over	1			Carpenter	1
				Shop keeper	1
				Clerk	1
				Maid servant	1
				Durwan	2
				No occupation	12
Total	35	Total	35	Total	35

Time of year and mortality			Sex	
	Cases	Mortality		
January	7	5	Male	27
February	4	2	Female	8
March	5	1		
April		Nil		
May	3	3		
June		Nil		
July	2	2		
August	3	1		
September	3	1		
October	1	1		
November	3	3		
December	4	3		
Total	35	22	Total	35

Injury, Incubation Period, &c (11 cases)

Nature of injury	Incubation period	Result
1 Piece of bone, rt foot	1 day (?)	D
2 Abrasions, back	"	C
3 Dry gangrene, foot	"	D
4 Wound, toe	1 day (?)	D
5 Granulating wounds, toe and knee ..	"	D
6 Smashed hand	5 days	C
7 Injury, foot	8 "	C
8 Bamboo splinter, foot	8 "	C
9 Injury, hand	4 "	C
10 Lacerated wound, elbow	12 "	C
11 Sore on tongue	8 "	C

For comparison, some details of the tetanus cases treated during the last four years are also given below—

I—Age

	1904	1905	1906	1907
Under 1 year	2	0	0	0
1-10 "	0	1	3	11
11-20 "	4	7	2	5
21-30 "	8	6	10	15
31-40 "	4	5	5	5
41-50 "	1	5	1	1
51 and over	0	0	0	2
Total	19	24	21	49

II—Sex

	1904	1905	1906	1907
Male	14	17	13	29
Female	5	7	8	10

III—Race

	1904	1905	1906	1907
Hindu	12	19	16	35
Mahomedan	5	3	5	3
European and Eurasian	2	1	0	1
Indian Christian	0	1	0	0

IV—History of Trauma and Mortality

	1904	1905	1906	1907
Trauma	9	7	15	21
Mortality	8	13	9	21
Total cases	19	24	21	39

V—Time of year

	1904	1905	1906	1907	1908
January	0	0	0	2	7
February	0	2	1	4	4
March	0	3	4	5	5
April	4	3	1	2	0
May	1	0	3	2	3
June	1	2	5	2	0
July	0	4	1	2	2
August	5	0	1	2	3
September	3	1	0	3	3
October	1	1	0	5	1
November	2	2	3	3	3
December	2	5	2	6	4

It will be seen that during these 5 years, the greatest number of cases occurred in March and December (March 17, December 19). The smallest number of cases occurred in January, July and October (January 9, July 9, October 8). But the figures are not large enough to make any deductions regarding seasonal prevalence, though the 2 coldest months (*viz.*, January and February) show a distinct diminution in the number of cases. As would be expected, the disease is commonest among coolies and unemployed natives, and most cases occur at about middle life.

The majority of the cases were treated by keeping them absolutely at rest, and avoiding as far as possible all sources of peripheral stimuli—patients were kept under the influence of chloral and bromides. Anti tetanic serum, though probably valuable as a prophylactic injection, has not been found to be very successful after the spasms have once started. It has been tried subcutaneously and intraspinally. Of the 22 cases which terminated fatally, 17 died within 2 days of admission, of the remaining 5, one died on the 4th day, one on the 5th day, one on the 7th day, one on the 12th, and one on the 21st day. Nine cases were discharged cured, and 4 left hospital before they were quite well—3 of which were on the high road to recovery.

(13) CYSTITIS DUE TO BILHARZIA DISEASE

Three cases of this disease were met with during the year. Two were Europeans and one a Persian. The latter had been an inhabitant of Mesopotamia, and came to the hospital as an out patient, complaining of chronic cystitis. The urine was examined, and when centrifuged was found to contain a fair number of bilharzia ova, together with pus cells, vesical cells, etc. The disease was discovered in the case of the 2 Europeans also by examining the urine, and in one case free swimming embryos were present as well as ova.

All these were obviously cases of imported disease, and the fact that there must be hundreds of infected persons in India, opens up the very serious question of the possibility of the disease becoming in time endemic in India. Indeed, this must happen eventually if this country proves suitable for the propagation of the worms, and considering the amount of suffering caused by the disease in Egypt and elsewhere, the outlook is not a pleasant one. It would be interesting to know how often cases are met with on the Bombay side, as the direct trade routes from Arabia, Egypt, etc. would appear to provide a ready channel for its distribution.

(14) TWO CASES OF POPLITEAL ANEURYSM

Case I—R S Hindu male, aged 28, employed as a copyist in the Central Provinces, was admitted into hospital for the treatment of a tumour in the left popliteal space.

H P C—About 3½ months ago he noticed a swelling behind the knee about the size of a plum stone. It was painful for a few days, but he continued his work as usual. During the last 20 days the tumour has increased in size, and has become very painful. There is no history of trauma, and he denies having had syphilis.

P C—Patient is fairly nourished—he has a prominent, fluctuating swelling over the lower part of the popliteal space, over which the skin is discoloured, having a greenish tint. The swelling does not pulsate, and is not appreciably altered by obliterating the femoral pulse.

An exploratory operation was undertaken by Major Bird, and on exposing the 2 heads of the gastrocnemius and separating them, the soleus was seen to have a dark appearance, obviously due to the presence of extravasated blood beneath. Further operation was stopped and the patient put to bed.

For the next few days the patient suffered a great deal of pain, which was only controlled by full doses of morphia. On 9th June the patient was again operated on. The femoral artery was ligatured in Hunter's canal. The aneurysmal sac was opened and a mass of laminated clot turned out, and the sac was packed with gauze, all bleeding points secured and a light dressing put on. The leg was kept enveloped in cotton wool, slightly flexed, and supported by pillows. On 11th June the plugs were removed, and the wound was found to be healthy, save that the muscles still showed a greenish discoloration. The circulation of the limb was not dangerously impaired at any time, and the wound gradually healed from the bottom, and the patient was discharged cured on August 31st.

Case II—A H, Mahomedan male, aged 50, cook, was admitted on August 21st with a swelling in the right popliteal space.

H P C—A month ago the patient noticed some swelling of the foot and this gradually spread up to the knee. Ten days ago he had a sharp attack of pain behind the right knee, and noticed a swelling there. He has always been a fairly healthy man, but states that he had syphilis in his youth.

P C—The patient is a frail, old looking man. A fluctuating swelling is present in his right popliteal space, which does not obviously pulsate. No pulse can be detected in the tibial arteries.

On August 22nd the skin over the tumour was incised, and a fine trocar introduced into the swelling in 2 places. Dark fluid blood came out and the movements of the trocar showed that the tumour was pulsating. The wound was closed, and the patient sent back to the ward. On August 24th the patient was again put on the table and the femoral artery was tied in Hunter's canal. He was kept quiet in bed for a month. Severe pain behind the knee continued, and the size of the tumour was little reduced, and on September 18th Major Bird opened the sac, turned out the clots, and patched the cavity with gauze. The wound slowly healed up and the condition of the patient improved slightly, but in the middle of October it was found that another aneurysm had formed just above the seat of the ligature of the femoral artery. Continued pressure by means of a shot bag was tried for 3 days, but did not have much effect and on October 31st the femoral artery was ligatured at the apex of Scarpa's triangle.

The patient began to go steadily down hill, and on December 2nd an abscess, which had formed in Scarpa's triangle at the seat of the ligatures was opened. The patient died on December 23rd.

(15) A CASE OF ANEURYSM OF THE COMMON CAROTID ARTERY

Rasik, Hindu male, aged 40, was admitted on April 3rd, for the treatment of a tumour on the right side of the neck.

H P C—About 7 months ago the patient noticed a small soft mass on the right side of the neck. This has steadily increased in size and has become markedly pulsating. He has no pain, and states that the tumour causes him no inconvenience whatever. He had syphilis over 20 years ago.

P C—There is a pulsating, oval swelling at the anterior border of the sterno-mastoid muscle. This is

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(15) A case of aneurysm of the common carotid artery

obviously an aneurysm, probably of the carotid artery just before its bifurcation. There is a marked double blowing murmur over the tumour, and also at the aortic base. The characters of the tumour can be seen in the accompanying photograph.

(16) INTESTINAL OBSTRUCTION

The following is an analysis of 20 cases of intestinal obstruction—other than strangulated hernia.

Age incidence		Age incidence		Sex	
15—20	3 cases	41—50	4 cases	Male	16
21—30	6 "	51—60	2 "	Female	4
31—40	5 "				

Cause of obstruction	No	Treatment adopted	Result	REMARKS
Fecal impaction	5	All yielded to copious enemata	C	
Ileo cecal intussusception	1	Reduced after laparotomy	D	
Double entero-enteric	1	Excision & anastomosis	D	
a Volvulus of sigmoid with perforation & peritonitis	1	Reduction of twist—suture of teri	D	
b Volvulus of sigmoid with great distention of gut	1	Reduction of volvulus. Massive saline injections	D	
c Volvulus of sigmoid with gangrene of gut	1	Laparotomy, excision of gangrenous bowel and colotomy	D	
Peritonitis involving lesser sac of peritoneum, no perforation found. Splenic flexure of colon bound down—enormous distention of small intestine and large gut up to transverse colon	1	Laparotomy, splenic flexure of colon released	D	
Pelvic Cellulitis	1	Laparotomy and supra-pubic drainage	D	
Diffuse sub-acute peritonitis, with great matting together of intestine	1	Laparotomy drainage by glass tubes	D	No post mortem
Chronic obstruction by a hard fibrous growth 2' above the anus	1	The bowel was temporarily relieved by passing a No 20 catheter. Patient insisted on leaving after relief.	R	A No 20 catheter was inserted.
Lower end of ileum bound down and lumen almost obliterated by old firm adhesions	1	Coil of intestine brought out and obstruction temporarily relieved	D	Patient's condition did not allow of an excision of the affected part, or an anastomosis.

Cause of Obstruction	No	Treatment adopted	Result	REMARKS
Strangulation of a small knuckle of bowel at the internal abdominal ring, subsequent to the reduction of an inguinal hernia	1	Reduced by open operation and radical cure performed	C	
General peritonitis following the perforation of tuberculous ulcers in small intestine	1	Ulcers sutured, treated by large saline infusion per rectum, etc	D	
Infarction of mesentery with gangrene of gut for about 2 ft	1	The patient's desperate condition prevented even an attempt at excision	D	

(17) A CASE OF BROWN SEQUARD PARALYSIS FOLLOWING A STAB WOUND IN THE BACK

M S, Hindu male, aged 40, was admitted into hospital on April 20th, for the treatment of stab wound in the back.

H P C—The patient states that about 8 P.M. as he was going to his master's house with some money, he was stabbed in the back by some ruffian. He remained conscious for about 15 minutes, and when brought to hospital he was in a semi-conscious state.

P C—There is penetrating wound, 1' long, and apparently about 2½' deep, situated ½' to the right of the 2nd dorsal spine. There is evidence that free hæmorrhage occurred, and cerebro spinal fluid is escaping from the wound. Both limbs are paralysed, and there is no knee jerk. There is retention of urine. The wound was cleaned and dressed. Cerebro spinal fluid continued to flow for 8 days, after which the wound healed. Some return of power was noticed in left leg on May 1st, but the limb is still anæsthetic. Sensation of heat and cold is absent. The right leg continued paralysed, but is hyperæsthetic. The trunk muscles are not paralysed, but the skin is hyperæsthetic up to the level of the 7th dorsal spine behind, and the 5th C.C. in front (on the right side), on the left side there is very deficient sensory power. He complains of burning and tingling from the level of the 7th dorsal spine to the knees on the right side, and feels as if a cloth was bound tightly round his abdomen. Control over the bladder was partly restored by May 5th, but he still had difficulty in starting the act of micturition. The bowels had always to be opened by enemata. Tactile sensation was to a great extent restored on the left side by May 18th, as regards the trunk and thigh. The patient remained in this condition till June 9th, when he was removed from hospital by his friends.

(18) TWO CASES OF PARALYSIS FOLLOWING HEAD INJURIES

The following are the notes of two cases in Major Stevens' wards, in which paralysis followed an injury to the head and occurred on the same side as the injury.

Case I—J C, Hindu male, aged 22, fell from a tram car and injured his head. He was brought into hospital a few hours after the injury, on 30th October 1908.

P C—The patient is conscious, the pupils are equal and contracted, and the pulse is full and 60 per minute. There is paresis of the left side of the face. There are

some abrasations over the scalp and a small hæmatoma is present over the right temporal bone

The patient was admitted and an ice cap applied to the head. Slight convulsions of the right side of the body occurred throughout the night, while partial paralysis was found to exist in the left arm and leg. In the morning the patient was conscious to the extent of being able to answer a few questions, and he pointed to his right temporal region as the most painful part of his head.

Major Stevens decided to trephine the case, and this was done first over the right Rolandic area. The brain and its membranes were found to be normal. The left Rolandic area was then trephined, and the membranes were found injected. The brain itself was of a light plum colour shewing that it had been considerably bruised. Both scalp flaps were returned and sutured, but the pieces of bone taken out of the trephine holes were not replaced.

The patient remained unconscious for some days after the operation, but no further convulsions occurred. On November 3rd, consciousness returned, accompanied by marked irritability. The left side of the body, including the face, was still paralysed, the eyes could not be moved to the left and much headache was complained of on the left side.

The wound healed by first intention, and the stitches were removed on 7th November. The condition of the patient gradually improved, but the left side remained stiff and painful, particularly at the knee. The knee jerks on this side were also exaggerated and Babinski's sign present. Considerable irritability continued, and bromides had to be given.

The patient was discharged from hospital on December 10th. The eyes could then be moved freely—the left side was still stiff, though not paralysed, and he was much quieter and could sleep at night.

Case II—O. G., Mahomedan male, aged 10, was admitted on November 2nd, 1908, for the treatment of an injury to the head.

H P C—Patient is stated to have fallen from a height of 15 feet and to have become at once unconscious.

P C—The patient is unconscious, the pupils are equal and slightly dilated. Pulse, 80 per minute. There is a big hæmatoma over the left eye, and some bleeding from the nostrils. The left side of the face and the left forearm were paralysed, but the left arm reacted slightly to painful stimuli.

On November 9th, the patient became conscious. He could then move his left arm slightly, while his left leg was very weak. By the 18th the condition of the arm and leg had much improved. He was discharged on November 28th, when only the facial palsy remained.

(19) MULBERRY GROWTHS OF THE NOSE

Now that these growths are definitely recognised pathologically, they are not uncommonly diagnosed in the out patient department. Six cases were seen, 2 of these being recurrent cases after previous scraping. All the patients save one who came from Madras, were Bengales, or Hindustanis living in Bengal.

Clinically these cases are easily recognised. In most of them the growth occurs on the floor of the nose, within $\frac{1}{2}$ of the nostril. It is pinkish, granular, and with the naked eye or a hand lens, a sprinkling of white spots can be made out, giving the little excrescence a strawberry-like appearance. These white dots are the capsules containing numerous rhinosporidia lineally. The base of the growth is sessile, and if not very completely removed or cauterized, recurrences are frequent. No cases have been met with here in females.

Nothing is known of the etiology of the disease. No symptoms are complained of by the patients, except slight obstruction on nasal breathing, and occasionally slight hæmorrhage. No cases have been met with of more than one growth in the same patient.

It would be interesting to know if the condition is met with in other provinces than Bengal and Madras.

Brief notes of 2 cases, which were admitted into the wards are appended.

I—S. J., Mahomedan male, aged 26, a coolie, was admitted on May 22nd. He was a native of Monghyr, but had been working at the jetty as a coolie for some months. A sessile, pink, polypoid growth was present near the left nostril, partly attached to the inferior turbinate bone, and partly to the floor of the nose. A similar growth was removed from the nose 4 years ago. The ala of the nose was raised, so as to expose the growth clearly. The growth was scraped away and its base cauterized. The patient was discharged on June 2nd. The diagnosis was confirmed by microscopic examination.

II—S., Mahomedan male, aged 50, a jute tester by occupation, was admitted on 18th November for a mulberry growth of the nose. He first noticed the condition 4 months ago. The growth was scraped away, and its base cauterized, and he was discharged on November 22nd. The diagnosis was confirmed in this case also microscopically.

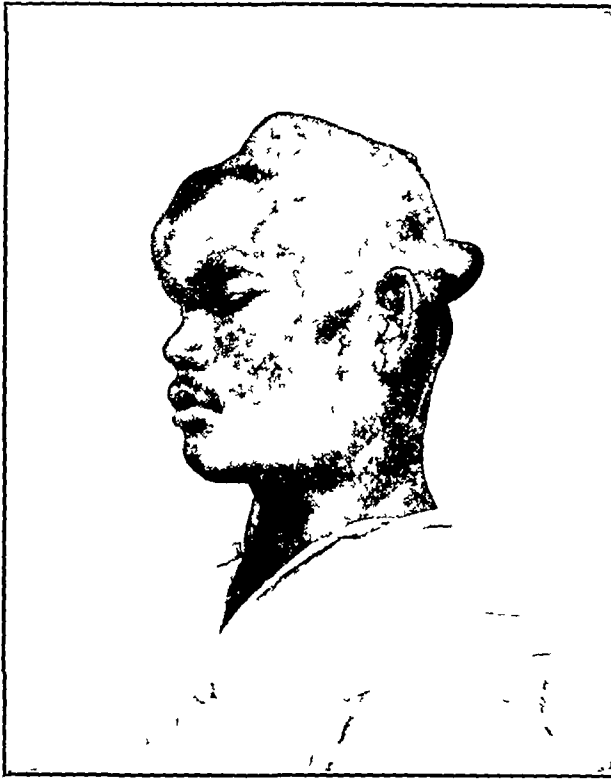
(20) CASES OF CUT THROAT

Nine cases of cut throat were admitted into hospital during the year 1908. Of these 7 were Hindus, one a Mahomedan and one a European. Six of the cases were suicidal and 3 homicidal.

Case	Nature of injuries	Result	REMARKS
1 H M, aged 30, coolie	Incised wound $1\frac{1}{2}$ " long, on the right side of the neck, trailing towards right. The larynx was opened.	C	Suicidal
2 M M, aged 35, syce	Incised wound, left side of neck, $4" \times 1\frac{1}{2}"$, from angle of lower jaw on left side to beyond the middle line on the right, trailing towards the left.	C	Homicidal
3 H M, at 30, coolie	Incised wound, $3\frac{1}{2}"$ long, skin deep between the hyoid bone and thyroid cartilage, $1\frac{1}{2}"$ to the left and $2"$ to the right of middle line.	C	Suicidal
4 H M, at 40, owner of press	Incised wound, $3"$ long on the right side of neck, in the thyroid space, and trailing to the left.	C	Homicidal
5 H M, at 30, sweeper	Lacerated wound, $3"$ long and gaping perpendicularly for $1\frac{1}{2}"$, thyroid cartilage was divided from above downwards at the junction of its middle and posterior thirds, and then the knife was brought out at the crico tracheal junction. The trachea below was retracted towards the episternal notch. The oesophagus was cut.	Died on 9th day	Suicidal. The patient breathed and was fed through the orifices of the trachea and oesophagus respectively, which were anchored to the skin near the top of the sternum.
6 E M, at 42	Deep lacerated wound, dividing the thyroid membrane. Two small incisions also present below the main cut, one below its left and one below its right extremity.	D	Suicidal
7 H M, at 35, cultivator	Gaping wound, $5"$ long, from $1\frac{1}{2}"$ below left ear to the left upper and outer angle of thyroid cartilage, dividing the thyroid hyoid membrane and the anterior wall of the oesophagus.	C	Homicidal (vide notes below)

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(21) A case of multiple osteomata of the skull



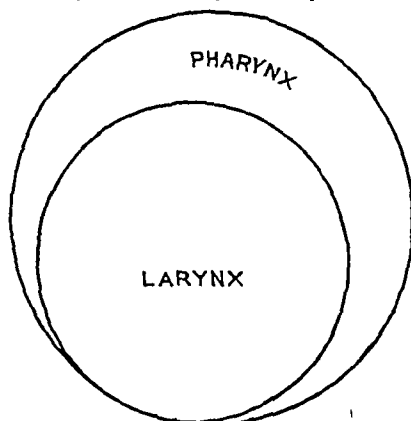
(21) A case of multiple osteomata of the skull

Case	Nature of injuries	Result	REMARKS
8 H M, aet 35, domestic servant	Incised wound, 3" long at the upper part of the thyroid cartilage, deeper on the right, exposing the cartilage. Four other small skin deep incisions were present below the wound, and a few ab- rasions over the cricoid.	C	Suicidal
9 H M, aet 27, goldsmith	Transverse cut along upper margin of thyroid 2" long, a superficial cut was also present below this	D	Suicidal Patient was very bad with phthisis and died 4 days after

The following case (vide No 7 above) is worthy of record as showing the possibility of recovery even after a desperate throat wound.

Sunkh, H M, aged 35, a cultivator, was sent to the hospital by the Civil Surgeon of Mundla, C P, for the treatment of a severe throat injury, which had been inflicted some weeks previously.

The wound was clean, red and granulating, and had obviously contracted a great deal. It measured 2" horizontally and 1½" vertically. Inside the wound the orifices of the superior aperture of the larynx and that of the lower part of the pharynx could be seen, as shown here diagrammatically. The patient was able to



take liquid food by the mouth if given very slowly and in small amounts, and even then part of it came out of the wound. By means of a catheter or stomach tube he could be readily fed through the opening into the pharynx, and this method of feeding was continued until the wound had contracted to half its former size. A plastic operation was then undertaken, and the wound closed.

(21) A CASE OF MULTIPLE OSTEOMATA OF SKULL

Lal Bahadur, aged 22, a Gurkha, was admitted on 27th February 1908, for the treatment of multiple osteomata of the skull.

H P C—The patient states that the bony tumours on his skull started growing 12 years ago. He complains of no pain, only of discomfort and disfigurement.

P C—As will be seen from the photograph reproduced here, irregular tumours are present on the forehead, vertex, and occiput. These are ivory like in hardness. That on the forehead is large, projecting forwards over the eyes and bridge of the nose, the occipital osteoma is smaller and rises suddenly from near the occipital protuberance.

The patient was much averse to having any operation performed, and this was not urged in any way, as only a small part of the growths could have been removed. The exact nature of the osteomata was thus not ascertained. When seen 6 months later the tumours had obviously increased in size, showing that their growth is becoming more rapid.

(22) X RAY DEPARTMENT

During the year 1908 the work of the X ray Department has been greatly extended. Many more cases were dealt with, and the scope of this special department much widened. It is hoped that in the near future every variety of electrical treatment will be in use. The space provided by the present room is quite inadequate for the purpose, but the new "Lady Minto Electrical Annex" is rapidly nearing completion, and when this is fitted up with the up to date apparatus which is being procured for the department, a great advance will have been made in X ray and electrotherapeutical work.

A register of the patients attending the department was kept. Over 1,100 patients attended, the majority of whom were out patients. Of these 540 were exposed to the X rays, Finson light, and high frequency current. Nearly 300 patients were examined with the fluoroscopic screen for diagnostic purposes, and 280 patients were radiographed.

The following may be mentioned as some of the conditions for which the X rays and Finson light were employed therapeutically—tinea tonsurans, etc., lupus vulgaris, tuberculous ulceration of the skin, and tuberculous glands of the neck, etc., exophthalmic goitre, keloid, leprosy, rodent ulcer, leukaemia, recurrences of malignant disease, trachoma, psoriasis, eczema, intertrigo, syphilis, etc.

Tuberculous Lesions of the Skin—The effect of treatment on all such cases was very satisfactory. True lupus vulgaris is quite an uncommon tuberculous manifestation among the out patients seen here, and many cases that have some resemblance to lupus rapidly clear up when treated with iodides. Tubercle of the skin of an eczematous type, and associated with breaking down tuberculous glands, is not infrequently met with—as in the so called scrofulous necks, in which the skin has melted away, and numerous pale, gelatinous areas remain, many of which are in direct connection with the more superficial diseased glands. Scraping has often only a transient effect on these cases, but if followed up by X ray treatment, healing is much more rapid and thorough. The effect of X rays on the deeper diseased glands was also marked in some cases, even when no surgical treatment had been tried.

In most of these cases a tube of medium hardness was employed, the anode being about 12 inches from the affected part. Three exposures of 10 minutes each were as a rule given weekly. The old mercury brake of the Mackenzie Davidson pattern is a most convenient form of brake for treatment—it will work perfectly for hours, and only requires cleaning after 3 or 4 months of use. All the working parts can also be readily replaced. The current is derived from the street main and suitably reduced by means of a motor generator, 4 to 6 amp in the primary being usually employed. The patient is screened by suitably prepared tubecovers and the affected part exposed through lead glass cylinders. These principles of treatment apply to most of the cases treated.

A photo is reproduced of a Mahomedan patient. This man's neck was literally riddled with tuberculous sinuses and areas of broken down skin. He was treated by X ray exposures only, and as will be seen, all the ulceration has healed and is now replaced by soft and pliable scar tissue very different from the puckered cicatrices that follow surgical interference. Some of the deep glands still remain enlarged, but most of these affected have shrunk considerably.

It seems to be undoubtedly a fact that the effect of X rays in producing a "reaction" is not nearly so easily obtained in dark as in fair skins. This is what one would expect, as the zone of dense pigment in the deeper layers of the skin must have some effect in retarding the penetration of the softer rays, as it does in the case of ordinary or ultraviolet light rays. This is a fact to bear in mind in the treatment of the various shades of skin.

Other Skin Affections—Cases of parasitic skin diseases, as is well known, respond readily to X ray treatment,

and this was the experience in the cases treated during the year under review. Two painful keloids were treated, and in both the pain was improved and the scar made somewhat softer, but no further change could be induced, although the treatment was carried out until a reaction was obtained. In one case of severe psoriasis the scaly patches were very much improved by irradiation, but the condition recurred as soon as the treatment was stopped. Three cases of rodent ulcers were treated, two of which healed steadily under treatment. The third, which involved the lower lid of a Hindoo woman, after improving steadily for a time, began to assume a more warty character and had to be excised. It had become epitheliomatous.

A variety of leprosy lesions were treated, but the results were uniformly disappointing. It is quite true, as was found at the X-ray Institute at Dehra Dun, that chronic leprosy ulcers become clean, the bacilli disappear from superficial scrapings and the part may even skin over. But this effect of the X rays can be claimed for almost any superficial ulceration which is not malignant. Leprosy, however, is in the great majority of cases a systemic disease, and the healing of a superficial ulcer is no guarantee that the disease has been eradicated. In the case of thickened leprosy nerves—ulnar, etc.—the X rays were found to have no beneficial effect.

Several cases of trachoma were treated. All were much improved, but none attended sufficiently perseveringly to enable us to form an opinion as to the ultimate value of the treatment.

Leukæmia—A case of bad lymphatic leukæmia was exposed twice. The disease terminated fatally a week later, so no opportunity was given to give X rays treatment a fair trial. No cases of spleno medullary leukæmia were treated.

Exophthalmic Goitre—Two cases of this disease were treated by X ray exposure in addition to the ordinary medicinal methods of treatment.

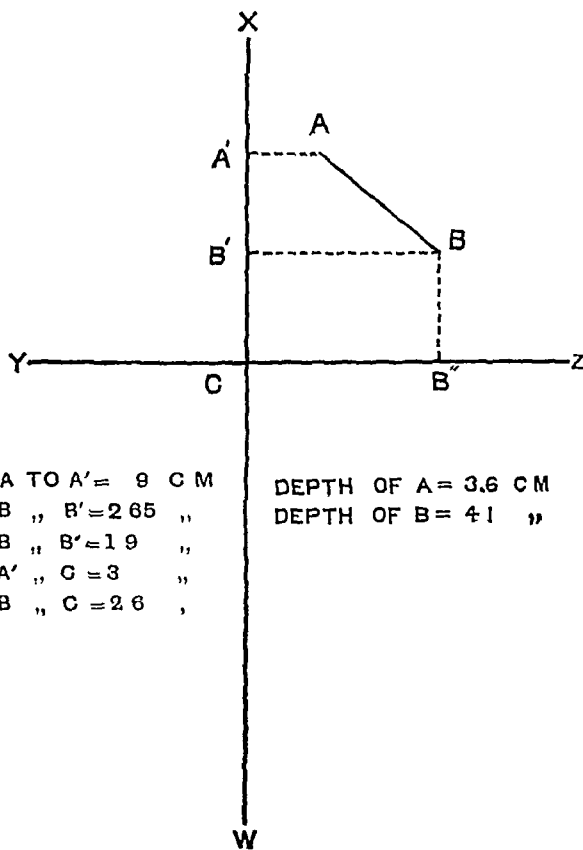
Case I—R. McF., European male, aged 38, Assistant Station Master. Both lobes of the thyroid were enlarged but the enlargement was much more marked on the right side, and a very well marked thrill was present near the bifurcation of the common carotid artery on this side. The patient had all the other signs and symptoms of Graves' disease, such as exophthalmos, tachycardia, tremor and the usual other nervous symptoms, etc. Eighteen exposures were given between August 24th and October 8th. The only improvement resulting was in the size of the thyroid gland, and a slight difference was observed in the nervous symptoms. A partial thyroidectomy was therefore decided upon, and about two third of the whole thyroid gland was removed quite successfully as far as the operation itself was concerned. Acute toxic symptoms of the usual kind, however, followed with extreme tachycardia, and the patient died about 6 hours after the operation.

Case II—European female, aged 30, came under treatment on September 21st, suffering from well marked signs of exophthalmic goitre. Exophthalmos, thyroid enlargement of the usual type, tachycardia and tremor were all present in a marked degree.

The patient was irradiated twice weekly for 8 minutes at a time with X rays. She was also treated medicinally at the same time. Within a month of the commencement of treatment her whole condition underwent great improvement, particularly with regard to the nervous symptoms. She has now been exposed 25 times altogether and is still under treatment. The thyroid enlargement has decreased in size, the tachycardia is much diminished, and she does not now complain of palpitation, there is very little tremor noticeable when she holds out her hands and her general health is much improved. The exophthalmos has proved the most refractory symptom as regards treatment.

There is some danger in such cases of producing myxœdema, and it is as well to proceed cautiously, with short intervals of rest.

Skigrams, etc.—Of the 280 skigrams taken during the year, some were of great interest—various abnormalities, foreign bodies, and pathological conditions, etc. Even the most interesting of these are too numerous to mention or reproduce photographically here. Six prints of skigrams are, however, included. In the case of foreign bodies stereoscopic plates were as a rule sufficient for localizing purposes, but in a few instances Mackenzie Davidson's cross thread localizing method had to be adopted. A good instance of the success of this method is that of a patient who had suffered from sciatica. An injection of cocaine had been attempted into the sheath of the nerve, but during the operation the hypodermic needle broke off and remained behind deep in the thigh. The patient came to hospital with this history and complained that he suffered from a great deal of pain and was unable to walk, as he could not extend his thigh fully. The needle was localized by the cross thread method as shown in the diagram AB.



represented the needle, and its position and depth in the thigh were exactly known by the measurements given, in relation to the lines WX, YZ drawn on the skin of the back of the thigh, and marked with silver nitrate. The position was further confirmed by taking a skigram, with the anode vertically over the mid point between A & B, and after fixing vertical and horizontal wires to the thigh crossing at the points A & B. When the patient was anaesthetised, long bare lip pins were introduced vertically into the thigh at the points A & B respectively, which were marked on the skin as shown. This proved most useful both as permanent guides when the skin bearing were lost by making an incision, and also as guides to the depth of the needle from the surface. The needle was found buried in muscle and fibrous tissue. The difficulty of the operation was increased by the fact that the patient had previously been operated on at another hospital, and an attempt to find the needle had failed. This case is an illustration of the extreme value of such methods of localization, as every surgeon knows the difficulty which is sometimes experienced in finding a needle even in a superficial part, such as the palm of the hand.

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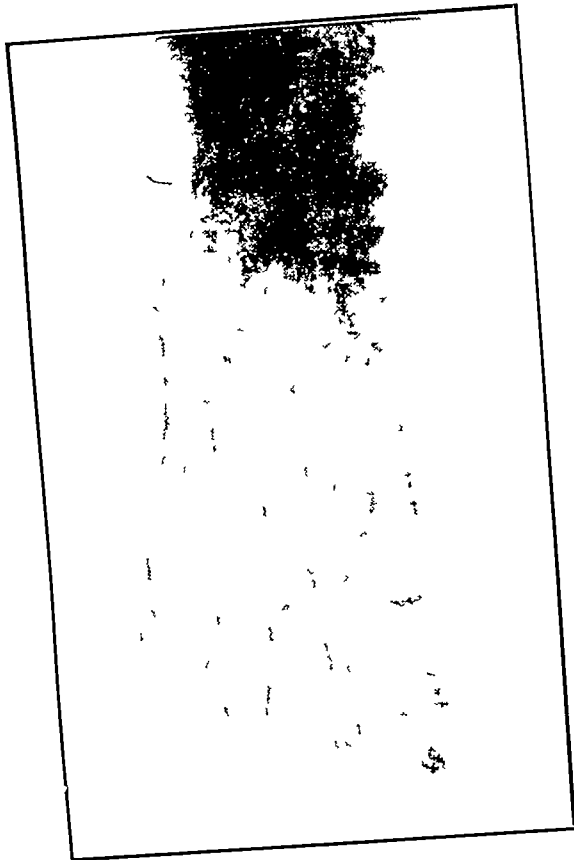


FIG I—A case of Ainhum. The print shows the marked constriction at the base of the little toe. The neck of the first phalanx is very thin at the level of the constriction. In more advanced cases the bone is completely divided at this level.

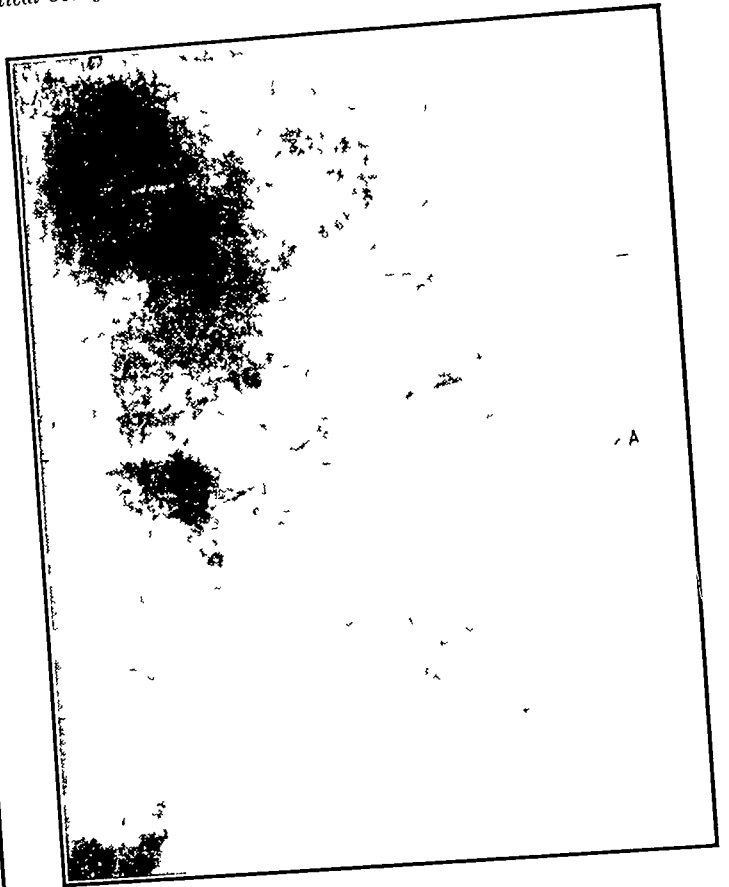


FIG II—Skiagram shewing a particle of brass about the centre of the left eye, at A. Its presence was only suspected, until its existence was proved by the X Rays. Extraction was attempted, but was found to be impossible without spoiling the eye, so the eyeball was removed.

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FIG III —Skiagram of a young lady who was shot just above the left clavicle with a revolver. The fragments of the bullet are clearly seen, and are embedded in the upper part of the left lung at a much lower level than would have been expected. No attempt was made to remove the fragments, as they produced no symptoms.

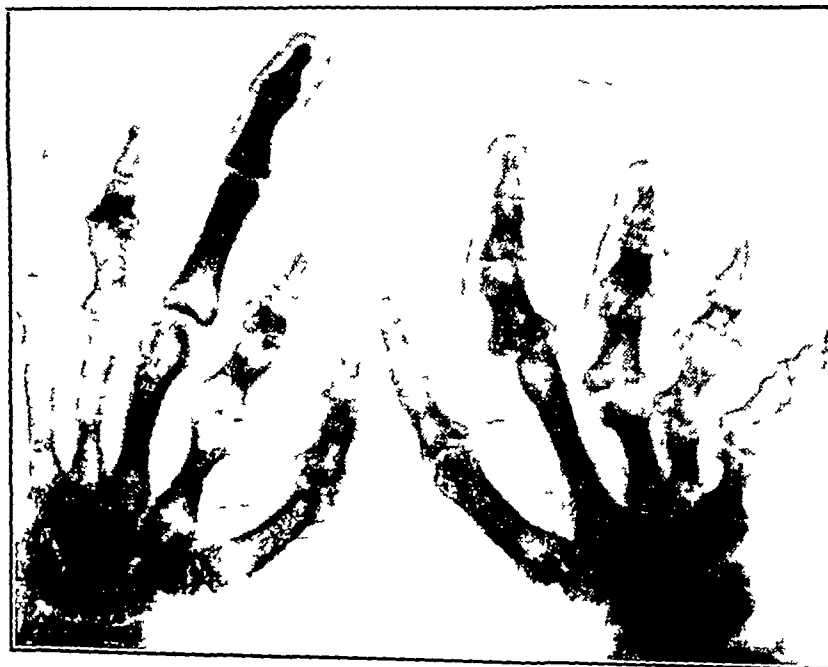


FIG IV —The hands of a patient who suffered from curious irregular deformities affecting the hands and feet. He stated that the condition was not congenital. There was no evidence of leprosy. Several of the phalanges and the heads of some metacarpals are dwarfed and eroded. Others—note the right middle finger—are hypertrophied. The base of the 2nd phalanx of the right ring finger shows the melting away process well. There were no superficial ulcers or scars. The man was a beggar.

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FIG V.—Supernumerary thumb. The metacarpal bone of the right thumb is bifurcated at its middle, and the smaller limb of the Y supports the supernumerary thumb consisting of two synostosed phalanges

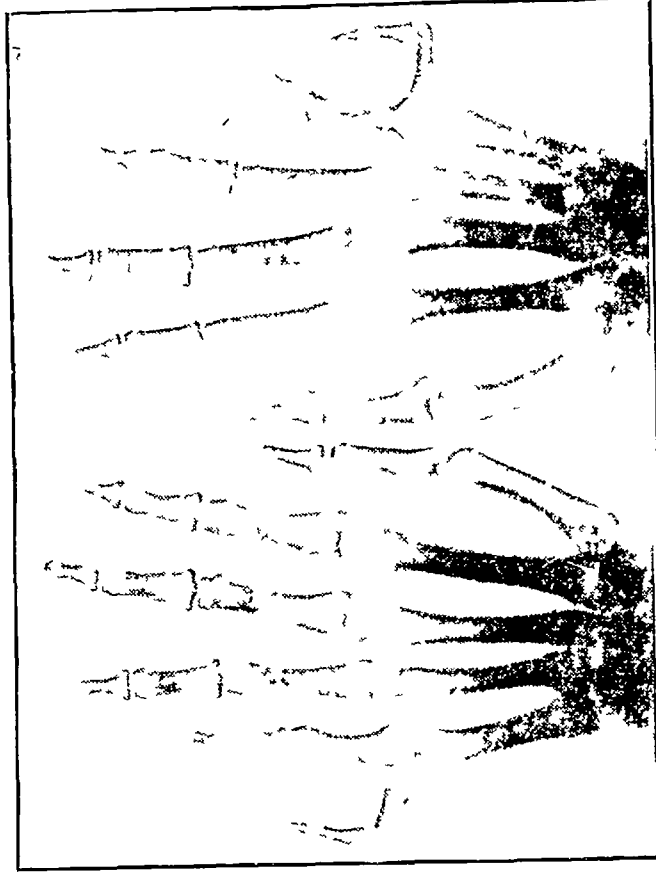


FIG VI.—A case of double hexadactyly. Each supernumerary little finger consists of three phalanges. The proximal phalanx of that on the right side articulates with both the head of the metacarpal bone and the base of the 1st phalanx of the true little finger, on the left side it is fused at its base with the adjacent proximal phalanx, and the two together form an articulation of the head of the metacarpal

A Mirror of Hospital Practice.

A CASE OF SARCOMA OF LOWER LIP

By O LANGSTON,

MAJOR, I M S,

7th Lancers, Jacobabad

I THINK this case worthy of record owing to the extreme rarity of this site for a Sarcoma, I have not only myself never seen a similar case before, but can find very few records of it, in Von Bergman's Surgery Vol I, mention is made of an angiosarcoma often congenital, first described by Kolaczek, it is of slow growth and said to be encapsuled and mobile. On first seeing the case I thought it to be one of macrocheilia, in which the lip had become much everted and depressed, thereby causing some ulceration on surface and



slight bleeding, combined with this there was faulty development of maxillary border of mandible, it being in part cartilaginous and the teeth loose in segments, and the consistence of the growth such as one would expect to find in lymphangioma cavernosum, also beneath the tongue was a tongue-shaped process, probably composed of lymphatic tissue, which had the appearance of an accessory tongue with a well defined tip and margin, and then again the history of the case, so difficult to obtain, was to the effect that the lower lip had been enlarged since birth, and that during the last three years it had grown

to the size as depicted in the illustration, the patient had also, which the photograph does not show, a large port wine stain on both cheeks. There was no glandular enlargement or evidence of secondary deposits anywhere. As the patient found life a misery with such a growth and having explained the risks I decided to remove the whole growth, which was done successfully having previously put the patient on a course of chloride of lime. A portion of the growth was sent to the Central Research Institute, Kasauli, and the report was large rounded-celled Sarcoma. Was it a case of macrocheilia with a nucleus of embryonic tissue taking on active growth at middle life or angiosarcoma congenital in which the sarcomatous elements remained dormant for a long period and then became active.

March 23rd, 1909

SARCOMA OF THE FEMUR

By O ST MOSES,

CAPT, I M S

In the ancient history of malignant tumours ample reference is made to the subject of cancer, even as far back as the times of Hippocrates, but the works of the "fathers of medicine" may be searched in vain for any allusion to sarcoma as a distinct variety of new growth. Indeed, until comparatively recently, many of the sarcomata were known by other names and included amongst other tumours, mostly cancers, in place of forming a definite class of their own, as they now do. Thus, the sarcomata of bones, according as they were hard or soft, were in former days classed with the scirrhous and the soft cancers respectively. But thanks to the advance in our knowledge of the clinical features, pathological appearances and above all, microscopic characters of such growths at the present time, there can be no question now as to the real nature of such a case.

Khalek Rahman, a Muhomedan lad, 16 years of age, was brought to hospital on May 15th, 1907 from his home in the village of Narkati, in the district of Backergunge. A single glance at the accompanying photograph (No I) taken at the time, will show the emaciated appearance of the boy. His family history was said to be good. His father died of small-pox at the age of 40 years, and his mother and an only sister were still living and healthy. It was manifest, however, that it was not the general condition of his health which brought the boy to hospital. He had an enormous tumour extending over the lower two thirds of his right thigh, measuring 12 inches in length and 26 inches in circumference. It was uneven on its surface, darkish very painful, covered over with filled and stretched veins, decidedly unseemly in appearance and holding on to the part which it attacked, with an unrelenting tenacity. The size which it had attained in relation to the wasted tissues of the body generally, gave one the impression that the whole of the substance of the patient was, as it were, draining into the tumour. The photograph scarcely does justice to this point, for the boy happened to be lying so that the growth was photographed somewhat "end on" and not sufficiently broadside. It was thought better to take the picture rapidly than to trouble the sufferer more than was

necessary by arranging and re arranging him. Some idea can, however, be formed of the relative size of the tumour by comparing it in the photograph with the globe of the head.

The history of the case was that five months ago the patient felt, at the lower and inner part of the right thigh, a pain which was worse at nights. This was followed by the appearance of a small swelling accompanied with a rise of temperature. There was no account of any previous injury to the parts. At this stage the leg could be used freely, but the swelling soon began to increase and continued steadily to do so until it reached the present condition. At first "country medicines" were applied, but partly as these proved inefficacious and partly because the tumour took on a comparatively rapid growth during the last month or so, the patient was brought to hospital for treatment.

The case was diagnosed as one of sarcoma and the prognosis given could not be anything but unfavourable. The position was clearly explained to the friends of the patient and they quite realised that, while amputation through the upper third of the thigh, the only plan of treatment admissible in this instance, was necessarily full of risk to one in such frail health, yet it gave the lad the only hope of recovery, indeed of life.

Accordingly, on the morning of May 17th, the amputation was performed by the method of mixed antero-posterior flaps with circular division of the muscles, only that I elected to make the posterior flap the longer one, seeing that the skin above the tumour on the posterior aspect appeared healthier than that in front. The whole process was done as rapidly as possible and by the bloodless method. The femur where it was sawn through, appeared healthy on its outer aspect, but as the medullary substance looked suspicious, an extra inch was removed by means of the saw. The flaps were brought into excellent position and provision made for drainage. A hypodermic injection of strychnine and ether was administered at this stage, and to it the patient rapidly responded.

The specimen removed proved to be of the greatest possible interest. Allowing for the lower leg and foot, the tumour weighed approximately 12 pounds. I cut into the growth by a mesial vertical incision on its posterior aspect, extending downwards as far as the lower limit of the popliteal space. Photograph which was taken at this time, gives some idea of the exceedingly interesting condition of things thus brought into view. A small portion of the shaft of the femur was present, as seen on the upper part of the picture at its left side. Tracing this downwards, one had not very far to go to notice how the bone changed in appearance and became verily a thing of shreds and fragments. The medullary cavity was greatly expanded, and bounded in parts by a mere shell of bone in others by spiculated trabeculae radiating more or less from the centre outwards. The periosteum which was intact round the shaft where it was sawn through, could not be distinguished lower down with the naked eye. The articular surface of the bones about the knee-joint appeared healthy and the morbid process did not involve the articular cartilages.

A microscopic examination of parings and scrapings taken from the specimen, was very kindly made by Captain Megaw, I.M.S., Calcutta, to whom I desire to express my gratitude. The result of his investigation confirmed the diagnosis sarcoma, and revealed, moreover, spindle celled type of the tumour, as well as the presence of a good deal of myxomatous degeneration.

Taking into account the evidence derived from the clinical, pathological and microscopic enquiries into the condition, there appears to be no doubt that in this case one had to deal with a very large primary sarcoma of the lower end of the femur, structurally of the spindle celled variety. Moreover, it would appear that the growth was, to begin with, essentially central, medullary or endosteal in character, and that latterly, as the

bone expanded and spontaneous fracture occurred, the periosteum became infected, and the soft parts around came to be involved in the morbid process. This appears to be in keeping with the comparatively rapid development which took place in the last month of the tumour growth, as well as with the presence of the sarcomatous elements in the substance of the surrounding muscles. There was no infection of lymphatic glands, a fact which tallies with the observation of Gross of Philadelphia, who in a large series of cases of sarcoma, noticed that in no instance did the spindle celled variety, either periosteal or endosteal, produce any infection of lymphatic glands. That the tumour was structurally not of the myeloid variety, was indicated by the rate of its growth which must be termed rapid considering the enormous size it had reached in five short months. The tumour itself and photographs have found a place in the museum of the Dacca Medical School.

AN ATYPICAL CASE OF RABIES IN A DOG

By G. BROWSE, M.B., (CANTAB.),

CAPT., I.M.S.

A SMALL fox-terrier belonging to a European subordinate was brought to me for inspection on October 30th, as it had bitten its owner and a friend two days previously.

The dog looked ill and was evidently rather "jumpy" and was snapping at two or three flies that kept settling upon it. The eyes were bloodshot, there were no symptoms of paralysis and no saliva about its mouth. It seemed to know its master and pricked up its ears when spoken to.

I ordered it to be locked securely up in a room with food and water.

On the morning of October 31st, it seemed much better and brighter, it could swallow as I saw it eat some meat and drink some milk, and it came over and sat up under the window when called.

On November 1st, its condition was not so good, it was very weak and becoming emaciated and would not eat. There were no symptoms of paralysis and no flow of saliva. It still pricked up its ears and came when called.

It died during the following night. At the *post-mortem* all the internal organs appeared healthy but absolutely devoid of fat. There was a piece of stick wedged across the roof of the mouth and a few pieces of wool in the stomach. The vessels of the pia mater were considerably engorged. A piece of the brain sent to Kasauli proved the case to be one of rabies.

The unusual points in this case seem to be—

I—The dog eating and drinking in such a late period of the disease.

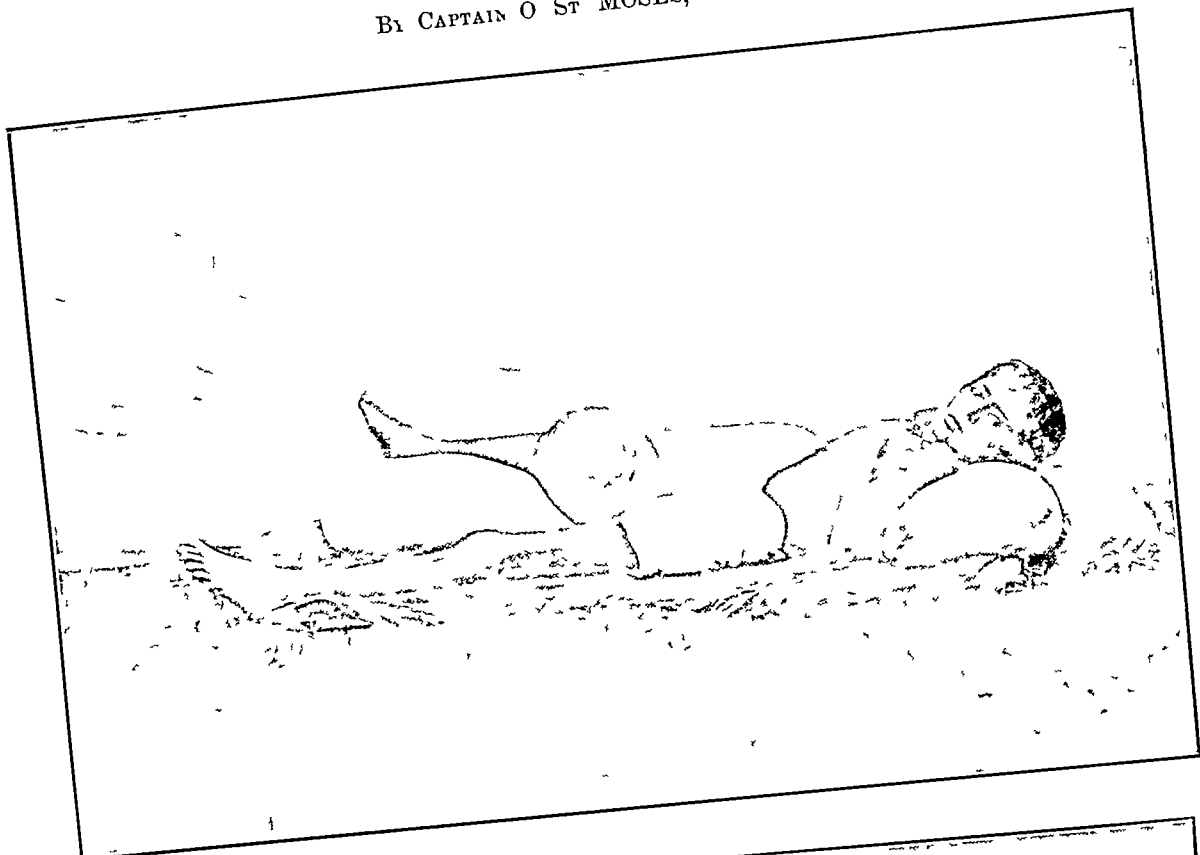
II—The absolute absence of paralysis.

III—The absence of any spasm.

The typical symptoms of both active and dumb rabies were thus wanting. I think this note may possibly be of use to dog owners and to others when asked to give a decision in cases of this nature.

SARCOMA OF THE FEMUR

By CAPTAIN O ST MOSES, I M S



Indian Medical Gazette.

JULY, 1909

ACIDOSIS AND ACID INTOXICATION

THE subject of acidosis and acid intoxication is one of more than ordinary importance to the medical profession in India and, particularly so, to those of us who have to do with that extremely common disease in Bengal—diabetes. In *The Quarterly Journal of Medicine* for April 1909* will be found a most valuable critical review of the subject.

It will be readily admitted that the healthy performance of the several functions of the different tissues of the body depends upon chemical and physico-chemical processes taking place in solutions of a certain composition. The balance between the acid and basic ions of the tissue fluids is held slightly in favour of the latter, so that the chemical reaction is faintly alkaline. Any disturbance in metabolism which tends to reverse this condition, *i.e.*, tends to diminish the alkalinity of the juices, may set up a state of *acidosis*. Such a disturbance does not necessarily lead to an actual reduction of the alkalinity, since the body possesses means of defence against such gross alteration of the composition of its more essential parts. As is well known, in carnivora and in man considerable quantities of acid may be ingested, or may be produced in the body by abnormal metabolic processes, and yet lead to no appreciable alteration in the reaction of the tissues or the blood—the acid combining rapidly with alkali and being eliminated in the urine. This neutralisation may be brought about in two ways: first, the sodium in the body fluids and tissues, potassium in the cells and the alkaline earths derived chiefly from the bones may be called on to the extent necessary; secondly, ammonia produced from the hydrolysis of protein may be intercepted before its conversion into urea and thus serve as the neutralising agent when a call for alkali in the body exists. If, however, the amount of acid ingested or produced in the body be so great that it cannot be neutralised in either of these ways, or disposed of by oxidation, then the reaction of the tissue fluids can no longer remain unaltered, and there is great danger of the symptoms of *acid intoxication* setting in.

We expect to find, therefore, in acidosis an excess of acid radicals in the urine, and in diseases, where acidosis is an accompanying sign, organic acids—foreign to healthy urine—are usually present. If the mechanism for neutralisation of acid were complete, the reaction of the urine would not be affected, as all acids would be passed out as salts or esters. It rarely happens, however, that this is the case with the result that there is an increase in the acidity of the urine from the elimination of non-neutralised acids. It will be easily understood that excess of acid may, therefore, be produced in the body long before any marked signs of acid intoxication begin to show. The question at once arises, are we in a position to determine the presence of acidosis and thus perhaps be able to prevent the reduction of the alkalinity of the blood and tissues which, if not checked, will eventually lead to acid intoxication?

One important clinical test is the reaction to alkali. If two drachms of sodium bicarbonate be given in water or milk, the urine in a normal individual will become alkaline and remain so for about twenty-four hours. But in a patient who is producing excess of acid, the sodium will combine with the acid radicals and be eliminated in the form of neutral salts, thus failing to render the urine alkaline.

The amount of sodium bicarbonate that may be taken without producing neutrality or alkalinity of the urine may be regarded as a measure of the degree of acid production.

A valuable test and one easily carried out is the estimation of the amount of ammonia in the total urine. The quantity of ammonia which is carried out in acidosis may be very large. In health less than 5 per cent of the total nitrogen excreted by the urine exists as ammonia; in diabetes the nitrogen of ammonia may exceed 20 per cent of the total nitrogen. In severe cases 8 to 10 grammes of ammonia may be excreted in twenty-four hours, which means the neutralisation of a large amount—over 50 grammes of β -oxy-butyric acid. The amount of ammonia, therefore, gives us a clue to the quantity of pathological acid in the urine, it is, however, only a rough index of the degree of intoxication.

A more accurate idea is obtained by a determination of the bases of the urine and comparing their alkali value with the total acid value of the chief known acids of the urine. Any excess of bases must correspond to the quantity

* *The Quarterly Journal of Medicine* Vol. I Spriggs

of some unknown organic acid—usually β -oxy-butyric acid

A method of investigation that should never be neglected is the examination of the alkalinity of the blood. When we find any reduction of the alkalinity of the blood, it shows that the "native alkali" is being drawn on and there is great danger of the condition passing from one of acidosis to that of acid intoxication. A considerable degree of acidosis may, however, exist with very little change in the reaction of the blood. Nevertheless, in severe conditions the blood does show marked changes.

Acidosis may be brought about experimentally by poisoning by mineral acids, by deprivation of mineral salts and by feeding on a diet consisting of protein and fat or by fasting. Dunlop investigated the effects of the administration of large doses of dilute mineral acids in man. The results showed the increase in the excretion of ammonium, sodium and potassium in the urine—the three bases added together were nearly sufficient to neutralise the amount of acid given. As is well known, the metabolism of protein results in the depletion of the body of bases—the formation of acid products from the contained sulphur and phosphorus, necessitating the excretion of those acid products as salts, carries out a proportion of the fixed bases of the body. If, therefore, mineral salts are withheld, or even if vegetables be withheld, this loss may result in a condition of acidosis. During fasting similar conditions obtain, since the body is living upon its store of protein and fat. Further, the absence of carbohydrates from a diet may be followed, both in health and disease, by the appearance of acetone, diacetic acid and oxybutyric acid in the urine—bodies which are of the utmost importance in the practical consideration of acidosis, their presence being indicative of an abnormal production of organic acids in the body. The fact, however, that they may be formed in the healthy body whenever the need for carbohydrates is unsatisfied for a sufficient period shows that their presence cannot be attributed to disease or inadequacy of any particular organ.

We may pass over the interesting discussion on the formation of acetone bodies and turn to the marked clinical conditions in which acidosis is present. Diabetes is the one disease in which the presence of acid poisoning may be regarded as definitely proved, the symptoms of the terminal stages of the disease, rapid pulse,

deep respiration and coma passing into death are similar to those which can be induced in poisoning by acids. The favourable results of the use of alkalis supports this view and Magnus-Levy, from a calculation based on the diminished alkalinity of the blood and tissues in diabetes, concludes that the amount of oxybutyric acid present in a severe case is more than equivalent to the amount of mineral acid required to poison an animal. It may be noted that the whole train of events concerned in the production of large quantities of organic acids in diabetes may be regarded as hanging upon the failure of the diabetic to use carbohydrate.

Other conditions in which acidosis and acid intoxication are suspected of being the direct cause are post-anæsthetic poisoning—first described by Guthrie as '*delayed chloroform poisoning*'—the recurrent vomiting of children, the toxæmia vomiting of pregnancy, puerperal eclampsia, acute yellow atrophy of the liver, uræmia and scurvy. With regard to some of these the evidence that acid intoxication plays a large part is strong, this is particularly the case in post-anæsthetic poisoning where the combination of the poisonous action of an anæsthetic with severe acidosis is sufficient to explain the symptoms, course and fatal termination. The results of measures adopted for its prophylaxis and treatment—the administration of carbohydrates and alkalis—supports the view that acidosis plays a large part in the causation of the symptoms. Wallace and Gillespie's results demonstrate this very forcibly. These observers, from investigations on 72 cases treated before operation with repeated doses of sodium bicarbonate, 100 cases treated in the same way with glucose and 127 controls, found that glucose was more efficient than sodium bicarbonate in preventing vomiting after operation. The proportion of patients showing acetone in the urine both before and after operation was also much lower in those who received glucose. On the other hand, in the treatment of post-anæsthetic vomiting when established, sodium bicarbonate has been found to be of great value.

With regard to scurvy, Raffle, in 1877, suggested that it was of the nature of an acid poisoning, this was experimentally strongly supported by Wright who found the alkalinity of the serum much below normal in patients suffering from scurvy. An interesting observation by

Holst in connection with the feeding of animals on foods capable of producing scurvy is that the same barley, which, eaten in the dry condition, gives rise to scurvy, does not do so after the barley is allowed to sprout. This is the more remarkable, as the content of fixed bases would be the same in each case.

That a strong relationship exists between acidosis and scurvy is evidenced by the account of this condition amongst Pathans in Calcutta—some cases of which are included in the special report of the Medical College, Calcutta. The usual diet these men live on is beef or meat and tea with practically little or no fresh vegetables. As already indicated, acidosis can be brought about in an omnivorous animal by the depletion of the body of bases, when no vegetables are taken, from the elimination of the acid products—sulphuric and phosphoric acid—of protein metabolism. In a diet composed wholly of tea and beef the conditions for the production of acidosis and acid intoxication are, therefore, peculiarly favourable, and it is suggestive that they are also peculiarly favourable for the production of scurvy. That, however, there is something besides acidosis and acid poisoning as a causative factor in the etiology of scurvy, would appear probable from the fact that sodium bicarbonate will not relieve the condition, whereas it can be completely prevented and cured by fresh vegetables.

THE CALCUTTA MEDICAL JOURNAL

OUR contemporary—*The Calcutta Medical Journal*—in the April number publishes a very suggestive and instructive article in the form of a lecture delivered by Dr. I. M. Mullick at the Calcutta Medical Club, on the "Medical Aspects of Student-life in Calcutta." Dr. Mullick's well-known interest in the student and the hygiene of his life makes any statements of his of more than ordinary interest.

We are very much interested in some of the important points he touches upon and, if only extensive data could be collected on such topics as the effects of early marriage, the effects of a change of diet and the resisting power to disease, it would strengthen the hands of those who look forward to the day when the student's life in Calcutta and elsewhere throughout India will be immensely improved. Dr. Mullick in this lecture deals more particularly with the miserable diet of the students as

a factor in their weak and defective development and their tendency to break down in the first strain of professional struggle. We are specially pleased to read the good, sound, commonsense views he puts forward, specially with regard to his remarks on the advantage of combining more animal protein in the customary dietaries of the students' messes. Every word we are able to endorse and are firmly of the opinion that, if a more liberal animal protein were supplied to the growing lad in the earlier years of his life, there would be far less cause for complaint of defective development, and students would be in a far better position to stand the strain of college life, professional examinations and the after-struggle for existence. We, further, might add that, while the offer of more easily assimilated protein in the dietary is all-essential, a reduction in the quantity of carbohydrates is also of great importance. Our reasons for saying so—leaving its predisposing effects to glycosuria out of the question—are that the excessive bulk of the diet from its largely vegetarian nature entails defective absorption and therefore leaves a large residue to be dealt with by the bowel. This large residue consisting of protein and carbohydrate provides a splendid culture medium for intestinal putrefactive micro-organisms—thus leading to auto-intoxication with its attendant symptoms—and fermentation entailing excessive breaking down of the carbohydrate molecule to products of low caloric value with consequent waste of the potential energy of the food and its accompanying defective nutrition.

THE XVTH INTERNATIONAL MEDICAL CONGRESS

THIS Medical Congress will be held at Budapest from the 29th August to the 4th September, 1909, under the august patronage of His Imperial and Royal Apostolic Majesty, who will be represented by His Imperial and Royal Highness Archduke Joseph. The programme comprising a list of reports and addresses shows the interest taken in this Congress by scientific celebrities and prominent specialists of all countries. Much original work has been offered and it may certainly be inferred that the discussions arising out of them will prove no less interesting than fruitful.

Our medical brethren in Budapest are laying themselves out to do all in their power to

render the stay of their guests in the metropolis of Hungary a sincere source of pleasure. The work of the Congress will be taken up under twenty-one different sections, embracing every branch of medical science, thus ensuring to members an opportunity of bringing forward the results of their work and the fruits of their experience in general or in special directions. Arrangements are being made for journeys, lodgings, festivities and excursions and social gatherings, everything, in fact, that can be done to render the Congress not only a success, but also to make the stay of members from all parts of the world a pleasant and profitable holiday.

Current Topics.

VASO DILATORS IN HIGH BLOOD PRESSURE

EDWIN MATTHEW (*Quarterly Journ of Medicine, April 1909*) publishes the results of his investigations on abnormal blood pressure and on the action of various substances in reducing it.

Of these substances the best known are the various nitrites and organic nitrates. Their action has been investigated physiologically on animals, and clinically by observations on the pulse with the finger and the sphygmograph. These methods undoubtedly convey a considerable amount of information, but it cannot be maintained that the results are at all comparable in exactness and comprehension to exact blood pressure readings. Something definite is conveyed to the mind by exact numbers, and the knowledge that a blood pressure measures 150 mm Hg is more satisfying than a report that the pulse tension is slightly, moderately, or markedly increased.

Matthew's purpose has been by actual sphygmomanometric observations exactly to determine the individual and relative actions of the various nitrites and other substances in conditions of high blood pressure.

He has confined his observations to nitrites and nitrates that are in general therapeutic use, viz, nitro-glycerine and liquor trinitini, sodium nitrite, potassium nitrite, erythrol tetranitrate, mannitol hexanitrate and cobalto-nitrite of potassium.

As the results obtained are of great practical importance and exceedingly interesting, we have no hesitation in reproducing them, at the same time, as it is not possible to give more than a summary of the paper, we would strongly recommend its perusal in its original form where the charts depicting the action of the several drugs on blood pressure will be found of the greatest help in obtaining the necessary mental picture.

An important observation regarding the different methods of administering the nitrites and nitrates was made, viz, with tabloids of nitro-glycerine and of erythrol nitrate no depressor effect could be obtained, so that these drugs were either pharmacologically inert or else the tabloids remained undissolved. Even after hours of observation no action was obtained, a result never found if the nitro-glycerine or erythrol were given in an easily absorbed form—as liquor trinitini or chocolate tablets of erythrol tetranitrate.

The conclusions drawn as to the individual and relative action of nitrites and organic nitrates are—

I—Action of nitrites generally

(a) Nitro-glycerine or liquor trinitini, sodium nitrite, potassium nitrite, erythrol tetranitrate and mannitol hexanitrate are all powerful vasodilators. Cobalto-nitrite of potassium shows no vaso-dilator action.

(b) Their action can be definitely ascertained as regards the time of initiation, amount of fall produced, and length of time the action lasts.

(c) These nitrites produce a fall in pressure only in certain cases of hypertension. In others they have no action.

II—Comparative action of the various nitrites

(a) Time in which the pressure begins to fall—

i Nitro-glycerine or liquor trinitini	— 1 minute
ii Sodium and potassium nitrites	— 5 minutes
iii Erythrol nitrate	— 5½ "
iv Mannitol nitrate	— 12 "

(b) Amount of fall in pressure in mm of Hg (average)—

i Liquor trinitini	— 28 mm
ii Sodium and potassium nitrites	— 32 mm
iii Erythrol nitrate	— 35 mm
iv Mannitol nitrate	— 35 mm

(c) The time in which the maximum fall is reached—

i Liquor trinitini	— 4½ minutes
ii Sodium and potassium nitrites	— 14 "
iii Erythrol tetranitrate	— 22 "
iv Mannitol hexanitrate	about 100 minutes

These nitrites begin to act in 1, 5, 5½ and 10 minutes respectively, the maximum, therefore, is produced in 3½, 9, 16½ and 90 minutes after the vaso-dilator action begins. The amount of fall produced by each is about the same, and therefore with liquor trinitini there is a very sudden and prompt action, not so sudden in the case of sodium and potassium nitrites, more prolonged with erythrol nitrate, and lastly, a very gradual and slow action with mannitol nitrate.

(d) The rise of pressure after the fall.

Variation of action between the different nitrites becomes still more evident when one studies the rise in pressure towards its original level.

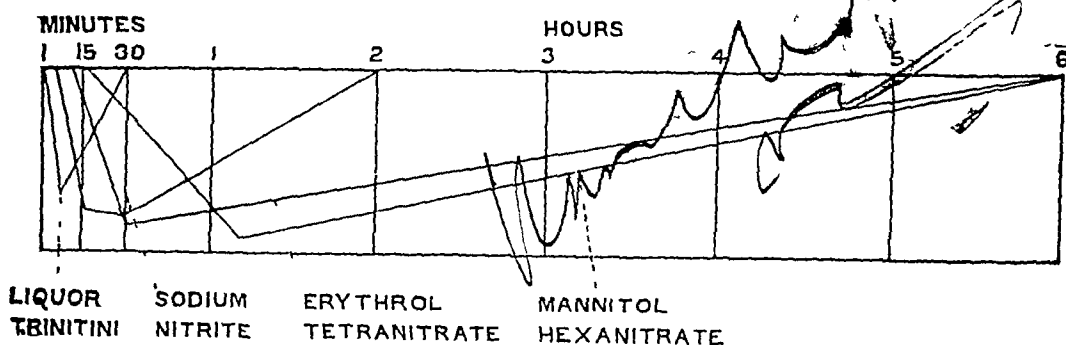
(i) With liquor trinitini the pressure begins to rise almost immediately a maximum fall has

been reached. The rise is slower than the fall, but in all cases the effect of the drug has completely passed off in 30 minutes.

(ii) Sodium and potassium nitrites have a more extended action. The maximum fall is maintained for from 40 to 50 minutes. The rise is slow and the effect does not pass off until two hours after the administration.

(iii) Erythrol and mannitol behave alike as regards length of time. The maximal effect is maintained for between one and two hours. The rise is very gradual and the original level is reached only five or six hours from the time of administration.

The various points determined are shown on the following diagram —



The observations show that in certain cases these drugs produce little or no vaso-dilator action. A rise of blood pressure occurs in certain well-defined clinical conditions. In chronic inflammatory Bright's disease, and in chronic Bright's disease the pressure is markedly raised, the rise being progressive. In generalised arterio-sclerosis a progressive increase in blood pressure is usually found. In their earlier stages these clinical conditions invariably responded to nitrites, but ultimately a stage is reached when the nitrites produce little or no response.

In heart and kidney cases too, where the blood pressure is raised, and where in addition marked oedema is present, nitrites do not act well. After the oedema has disappeared, the usual vaso-dilator action may reappear.

Matthew very rightly points out that, within limits, increase in blood pressure is not necessarily harmful to the individual, just as the left ventricle in aortic incompetency has to hypertrophy to accommodate itself to the conditions incidental to the aortic leak, so probably high blood pressure must be considered compensatory if the proper relationship is to be maintained between the various parts of the circulation and between the circulation and the tissues.

Unfortunately we find that, once started, the tendency is for blood pressure to increase progressively, and our aim in treatment should be to prevent this increase being too sudden and exaggerated.

From the observations an attempt has been made to ascertain what reduction of pressure is both necessary and safe for relieving and alleviating symptoms and maintaining the pressure at a level that shall be at least innocuous to the patient. It was found that such signs and symptoms as pain, headache, giddiness, epistaxis, etc., were alleviated or disappeared altogether with a reduction of pressure amounting to about 30 mm Hg, and if this fall could be maintained, the symptoms did not reappear. By investigating the active nitrites in varying amounts necessary to produce this result, Matthew found that—

1. Liquor trinitini, two minims repeated, if necessary, in half an hour is sufficient.

2. Sodium and potassium nitrites, two grains produce a reduction of just over 30 mm Hg. This action lasts two hours and only after this is it necessary to repeat it. No benefit is obtained by increasing the dose.

3. Erythrol nitrate, $\frac{1}{2}$ to 1 grain will produce the beneficial reduction, and the effect will last about six hours.

4. Mannitol nitrate—1 grain tablets give the desired effect. It is essential to point out that, in all cases, the useful and suitable dose of a nitrite for each individual can readily be ascertained by making an observation or two and noting the effect of the nitrite as to the amount of fall of blood pressure produced and the time the action lasts.

PERINEAL V SUPRAPUBIC PROSTATECTOMY.

In a paper by C Eugene Lack, M.D. (*International Journal of Surgery*, March 1909), will be found a discussion on "Prostatectomy when to operate and what operation to perform."

Five operative procedures are considered —

1. Establishment of an artificial urethra, only palliative.
2. Botini's or the galvano-cautery operation, cauterising the prostate with the galvanic current with the aim of setting up cicatricial changes thereby contracting the organ. The results are uncertain. Its mortality is nearly as great as radical removal, and is of extremely limited applicability.
3. Castration. Mortality 8.36 per cent.
4. Suprapubic prostatectomy (Freyer's operation).
5. Perineal prostatectomy.

Deaver and Freyer prefer the suprapubic, while Young prefers the perineal route. Dr. Lack puts it that the operator with the lowest mortality is entitled to the centre of the stage.

Deaver reports twenty-three cases with a mortality of 13 per cent. Freyer's mortality in his first three hundred and twenty-two cases, with twenty-five deaths, was 7.8 per cent, in his last hundred and nineteen cases, with nine deaths, 7.5 per cent, showing that with improved technique he had not decreased his mortality.

Young reports two hundred and seventy-three cases treated by his operation, which he terms conservative perineal prostatectomy, with eight deaths, or 2.8 per cent. In his last one hundred and forty-six cases there was only one death, 0.68 per cent, in wholly unselected cases. Every case appearing for relief was operated upon, although some were already in *catheuria*, and Young explains that his last death might have been avoided. Hence Young's conservative perineal prostatectomy seems to be the operation of choice. The best laws of surgery govern the operation. We secure perfect drainage, the ejaculatory ducts remain intact, as do also the seminal vesicles and prostatic urethra, we secure continuous drainage which can be kept up twenty-four hours, the patient can control his urine two days after operation and is out of bed in three or four days.

Young's résumé is as follows—These statistics prove conclusively that perineal prostatectomy is not only the safest procedure, but indeed much safer than the use of a catheter.

THE CAUSE OF FATIGUE

THE cause of fatigue was recently discussed by Sir Lauder Brunton during a debate at the Medical Society reported in the *Clinical Journal*. The quickened pulse and respiration were until lately regarded as chiefly of mechanical origin, but Sir Lauder now adopts the views of Mosso as to the production of definite toxins by the muscles during exertion. Thus he has found that if a narcotised dog be transfused with blood from a dog which has been at rest, no effect is produced upon the pulse and respiration, when, however, that of an animal which has been tetanised is employed, acceleration of both rates is produced just as if the narcotised dog had itself been tetanised. From this conception he passes on to that of fatigue antitoxins, which are, he believes, produced in the system in response to the fatigue toxins, just as antivenins in response to small doses of snake venom, and diphtheria antitoxin when diphtheria bacilli are used. The principles so well known of the immunising effect, owing to the formation of these antibodies, of small commencing doses, gradually increased, are utilised to explain the phenomena of the familiar process of "training." The athlete begins his course of training, if he is wise, with quite gentle exercise, thus auto-inoculating himself with fatigue toxins and causing an output of corresponding antitoxins. Gradually he increases his dose of fatigue, at the same time multiplying enormously his capacity

for making fatigue antibodies, and thus he is able after a few weeks' training to endure exertion, that is to say, to neutralise toxins, by which he would, when untrained, be completely prostrated—(*The Hospital*).

In this connection it is of interest to note that Dr. Leonard Hill, from his researches on the administration of oxygen gas to athletes, arrives at the conclusion that fatigue is mainly of cardiac origin and due to want of oxygen. He makes the further important point that in the ordinary method of administering oxygen by a tube and funnel, the percentage of this gas in the inspired air is raised only to 27 per cent. By using a celluloid face piece he was easily able to raise the percentage to over 70.

THE RELATIONSHIP OF HEART AND LUNGS

We are indebted to "*The Hospital*" for the following interesting extract—

"In a communication to the Society of Physicians of Vienna Dr. Exner draws attention to the fact that the position of the heart between the lungs enables it to get rid of the over production of heat which necessarily accompanies its continual work. The lungs act as coolers to the heart, which would otherwise tend to be overheated. The work of the heart amounts to 10,000 kilogrammetres per day, of which about two thirds are transformed into heat, giving approximately 70 calories, whereas, according to the weight of the heart, it should not produce more than 13 calories. Yoshimura has carried out some observations on the temperature of the heart and lungs in animals, and finds that the temperature of the ventricular wall exceeds that of the lungs by 0.5° C. The temperature of the lungs diminishes in proportion to the distance from the heart. He finds, too, that the ventricular wall has a higher temperature than the blood it contains, amounting to 2° C. Moreover, the blood in the right ventricle is hotter than that in the left. In the latter case it has been presumably cooled by its passage through the lungs. By surrounding the heart with cotton wool, so as to prevent the conduction of heat to the lungs, the temperature rises, the heart beats become more rapid, and then cease. If the cotton wool is removed, the heart contracts again. Although it may be correct to assume that the position of the heart between the lungs facilitates the dispersion of excessive heat produced by the heart, these experiments would also appear to indicate that a large proportion of this heat is carried off by the blood circulating within it. While it is shown that there is a difference of 0.5° C. between the ventricular wall and the lungs, the much greater difference of 2° C. between the heart and the contained blood suggests that the dispersion of excessive heat from the heart takes place more especially in this direction."

ANAPHYLAXIS

IN the *Annales de l'Institut Pasteur*—1909, p. 166—Besiedka gives his sixth note on the results of his research concerning Anaphylaxis. This time he has been working with milk, and confirms the experience of Rosenau and Anderson as to the supersensitizing power of a hypodermic or intraperitoneal dose of milk heated or unheated. If 16–20 days thereafter an intracerebral dose of so small a quantity as 0.1 cc. be given, the animal will die within a few minutes. He

found that, unlike blood serum, milk does not lose its toxic properties on being heated to 100°C. Even 120°C for 15 minutes has no effect, but above this temperature a gradual loss of toxicity results, till at 135°—140° the milk becomes gelatinous and absolutely atoxic. He recommends that intracerebral injections be made with milk heated to 100° for 20 minutes, for if made with unheated milk, they may cause death in non-sensitized animals. The toxicity of milk for supersensitive animals is in a measure specific, for human milk has no effect on a guinea-pig supersensitized with cow's milk, though goat's milk has. [Serologists have long been aware of the very close relationship between the cow and the goat.] Cow's milk, on the other hand, is not poisonous to a guinea-pig supersensitized with cow's blood serum. Supersensitiveness does not ensue when the guinea-pig is treated with milk administered *per os* or *per rectum*. A "massive dose" 5 cc of milk administered on the evening before the intracerebral dose is given, will protect the animal from what would otherwise have been the certain lethal effect of that dose. This vaccine-power is possessed also by milk heated to 100° C and over. Even milk heated to 130° C has this power, although it has no supersensitizing power, and is not toxic for supersensitized animals.

Whey, heated or not heated, in doses of 7 cc, administered intraperitoneally, has also this vaccine-power, and though whey obtained by centrifugalizing or filtering curdled milk has, as such, no supersensitizing power, yet if it be treated with soda solution, and, the supernatant liquid having been decanted, the precipitate be shaken up with physiological salt solution, the extremely fine emulsion thus obtained will be found to have supersensitizing power. Neither this emulsion nor the original whey have any toxic effect on supersensitized animals. This vaccine-power is possessed by whey given *per os* or *per rectum*, and also by milk administered in like manner.

CLIMATE AS A CAUSE OF PYREXIA

COLONEL M. D. O'CONNELL, M.D., writing in the *Journal of Tropical Medicine and Hygiene* on climate as a possible cause of pyrexia, shows that the effect of exposure to an atmosphere of 113° F saturated with moisture is to produce a pyrexia, the duration of which depends on the length of the exposure. He then proceeds to discuss how a saturated atmosphere of 113° F causes pyrexia and how the effect of the Russian vapour bath is explained.

It is evident that temperature alone affords no explanation, very much higher temperatures in a Turkish or dry-air bath can be borne with practically no rise of temperature. The other factor is humidity, the air is saturated with moisture so that the evaporation of water from the skin and lungs must be completely arrested.

This in itself would cause the body temperature to rise, if heat production within the body is not at the same time reduced. Further, when the amount of water excreted through the skin, lungs and kidneys is reduced, it is plain that a considerable amount of water must be retained in the blood and tissues. But an increase of water in the blood and tissues causes an increase of metabolism or heat production within the body. Hence exposure in a Russian vapour bath causes pyrexia by arresting evaporation of water, *i.e.*, arresting heat loss from the body, and increasing the amount of water in the blood and tissues, thereby increasing metabolism or heat production in the body.

Seeing, then, how a hot, damp atmosphere raises body temperature from normal to 103° F or even higher, the question naturally arises, does meteorological environment in nature ever cause pyrexia? Colonel O'Connell answers this question in the affirmative. A warm or hot, damp, stagnant atmosphere causes pyrexia of an intermittent type, due to the two well-marked changes that takes place in temperature and humidity during every period of twenty-four hours.

The gradual fall in atmospheric temperature and rise in humidity that occurs during the afternoon and throughout the night until early morning tends to produce retention of water in the system, and therefore to increase metabolism and heat production.

We are quite in agreement with Colonel O'Connell in the commonsense explanation of a rise of temperature in a Russian bath—where suddenly heat loss by the skin, lungs and kidneys is largely arrested and perhaps heat production increased, that such conditions obtain in the moist, hot climates of the tropics we have plenty of evidence in the prevalence of heat-stroke during the period when with a fairly high temperature there is also excessive humidity.

We believe, further, that the two factors put forward are sufficient to explain the pyrexia or even heat-stroke, *viz.*, arrest of heat loss by the usual channels and increase of heat production. We, therefore, do not follow Colonel O'Connell in his desire to prove that hæmolysis from retention of water is a contributory cause. If the water retained were distilled water there might be some grounds for this retention being the cause of hæmolysis, but such cannot be the case. Water retained in the system from stoppage of sweat, etc., must be already part of a solution that is isotonic with the red blood corpuscles, and the mere fact that sweat, etc., fails for a time to eliminate the excess of the fluids of the body will not render those fluids hypotonic as regards the red blood corpuscles. In fact, the tonicity of the fluids of the body are kept wonderfully constant under the most adverse conditions, and the fact that with the retention of water in hot, moist climates, there

is, at the same time, a retention of the substances which render the solution isotonic or nearly so must exclude the idea that hæmolysis can be brought about in this way, *i.e.*, by a retention of fluid that would under ordinary conditions have been eliminated

DIAGNOSIS OF FEVERS

THE differential diagnosis of fevers is probably the most important problem set the ordinary medical practitioner in India, fever of one kind or another forming by far the larger proportion of the affections calling for treatment

In a pamphlet,* reprinted from the *Lancet*, September 1908, Major Sutherland, I.M.S., deals very fully with the different methods by which fevers may be recognised and differentiated from each other

In any given case of fever the following postulates may be assumed—

1 The cause of the fever must either be infective or non-infective (Modern knowledge tends to show that the cause is *almost always* infective)

2 If the cause be infective—that is to say, due to the invasion of the body by a parasite—a parasite of some one or other class must be present somewhere, either inside the body or in relation to one of its surfaces, and, unless ultra-microscopic, is in all probability discoverable

3 Such parasite must either be—

- (a) Bacterial—(coccus, bacillus, vibrio fungus),
- (b) Protozoal—(amœba, piroplasma, Leishman Donovan body, spirillum, trypanosome, etc.),
- (c) Vermicular—(worm embryo or worm),

4 The infection must either be—

- (a) A local infection of the skin, or of some mucous surface of entrance or exit,
- (b) A general infection of the circulation,
- (c) An infection of the spleen, or a localised infection of the lymph circulation, or
- (d) An intoxication from without

5 If it be a *local infection*, the parasite will excite local action wherever it has lodged, which will be likely to reveal itself by local symptoms and physical signs, and, probably, the parasite will be discoverable in some one or other secretion or pathological discharge. In addition, the blood should show evidence of entry of toxins into it from some one or other source

6 If it be a *general infection* of the circulation, it must be possible to find the parasite (unless ultra-microscopic) in the blood, or to obtain evidence of its presence

7 If it be an *infection of the spleen*, or a *localised infection in the lymph circulation*, the blood should show signs of disorder in some one or other of its hæmopoietic tissues, and it should

be possible to find the parasite, or to obtain evidence of its presence, in the spleen, or in some one or other lymphoid or lymphatic structure

8 A negative finding on all these points would imply that the cause is non-infective

Granting these postulates to be correct, Major Sutherland gives in detail the procedure that should be carried out until a definite diagnosis is arrived at

The method of procedure

(1) If it is a local infection, the first step towards forming a diagnosis should be a thorough physical examination of the patient. A positive finding is generally conclusive. A negative, however, may be inconclusive as—

(a) The local infection may not yet have yielded physical signs

(b) The local signs may be so trifling that they are overlooked

If after repeated examinations the finding is still negative, one must conclude the case is *not* one of well-marked local infection. It must then be either—

(a) A general infection of the circulation,

(b) A spleen infection, or a localised infection somewhere in the lymph circulation,

(c) A local infection with insufficient physical signs to reveal its presence

(2) To prove that the disease is a general infection, the parasite must be found in the circulation, or evidence must be obtained of its having been there. When the physical examination is conclusive, an examination of the blood is therefore the second step towards a diagnosis

A positive finding is conclusive, provided the micro-organism found will explain all the clinical features, if not the possibility of mixed infection (sympiosis) must be borne in mind

A negative finding is inconclusive, for—(a) the parasites in the circulation may be few in number, requiring therefore incubation or the making of blood cultures, or inoculation into susceptible animals, (b) the parasites may not be in the circulation at the time. Few parasites can live in the circulating blood at all times in the twenty-four hours, and most of them lie up in the spleen or hæmo-lymph glands most of the time

When repeated blood examinations are negative when no free pigment or pigmented leucocytes can be found when the kept citrated blood reveals nothing and when culture and inoculation experiments are negative, then it must be assumed that the case is *not* a blood infection. It must then either be—

(a) A local infection without physical signs, or

(b) A splenic or a localised lymph infection

If either of these, bacterial toxins must be undergoing absorption which are likely to cause disintegration of the red and white corpuscles. Alterations in the total number and in the relative proportions of the leucocytes are of the greatest importance

* The Differential Diagnosis of Fevers. By Major D W Sutherland, M.D., F.R.S.E., Professor of Medicine, Lahore Messrs Thacker & Co., Ltd., Bombay.

Hence the third step in the diagnosis of an obscure case must be the enumeration of the leucocytes and a differential leucocyte count.

Major Sutherland then discusses the significance of the total leucocyte count, the differential leucocyte count, the meanings of a relative increase in the polymorphonuclear, eosinophyle cells and lymphocytes.

The final step in the diagnosis will be the determination of whether the parasite is in the spleen or lymph circulation or not.

The paper is a very valuable one and is full of sound, practical ideas that will give much assistance in the differential diagnosis of different febrile conditions. It is an admirable summary of the present state of our knowledge regarding the recognition of fevers and the methods that have been worked out to discover their cause.

REPORT OF THE PASTEUR INSTITUTE OF INDIA, DECEMBER 1907

THOUGH somewhat belated, this report—the seventh annual report—of the Pasteur Institute speaks of steady progress in the work. Since the establishment of the Institute in 1900, there has been a steady increase in the number of patients who underwent anti-rabic treatment. In 1900, 321 patients were treated, in 1908, 1,349, in all, since its establishment close on 6,000 persons have been attended to for the prevention of rabies.

The percentage of failures of treatment for all classes was 0.44, a figure lower than has ever previously been reached at Kasauli. The system of immunisation in force now is one founded on Professor Hovges' modification of the Pasteurian method. The modification was worked out by Capt Harvey, I.M.S., and Capt McKendrick, I.M.S., from researches carried out in the institute—it is known of as the dilution method.

Its advantages are simplicity, accuracy and a great diminution in the usual ill effects of the old Pasteurian method on the patient. No signs of urticaria, joint-pains, depression or paralysis have been noticed since this dilution method has been introduced. The results of the treatment compare very favourably with those obtained by the Pasteurian method.

The presence of negri bodies is now looked upon as certain evidence of rabies when found in the brain of a suspected animal. Major Cornwall, I.M.S., has arrived at the same conclusion from his work in the Coonoor Institute.

Other work carried out by the staff was the examination of 675 specimens of various kinds, and the publication of a scientific memoir forming an important addition to rabies literature by Capt Harvey and McKendrick, I.M.S.

THE INDIAN MUSEUM ;

THE Indian Museum Authorities have just brought out an illustrated catalogue of their

collection of Asiatic horns and antlers from the pen of Mr T Bentham.

The work is intended primarily for sportsmen and field naturalists, and measurements are given in inches and tenths of inches. The nomenclature follows that of the late Dr Blanford's volume on the mammals in the "Fauna of British India and Ceylon." It is hoped that the publication of this catalogue will serve as an appeal to those in a position to help the Museum by giving specimens. The greater part of the collection of mammals consists of the gifts of naturalists and sportsmen of a former generation, now-a-days it is rare to obtain specimens except by purchase. Assistance by the gift of specimens increases the Museum's power to assist the amateur. The officials are often placed in the ridiculous position of being unable to answer inquiries about some common animal, because they cannot refer to specimens, no one having taken the trouble to collect them.

The catalogue will be found invaluable to those of our readers who are fond of sport and wish to know something of the specimens they have collected.

We hope also that many will be able to assist the Museum in their desire to add to their collection.

SAUNDERS' BOOKS

WE are in receipt of a descriptive catalogue of Medical and Surgical Works of Messrs Saunders Co.

The Catalogue is illustrated, has been revised and brought up to January 1909. It contains all the new books and new additions at present on the market, from the press of this great publishing firm, and embraces practically every department of medical science. That Saunders' publications have given satisfaction to those who, from their position, have to recommend textbooks, is shown by the fact that this year in the list of recommended books published by 164 colleges, Saunders' books are mentioned 3,278 times—an increase of 274 over the previous year. This works out that an average of 20 per cent of the teaching books are publications issued by Messrs Saunders Co.

We can heartily recommend all, whether they want books or not, to send for this illustrated catalogue.

MANY of our readers will have heard with great regret that Lieut-Col J Anderson, I.M.S., Civil Surgeon, Lucknow, had to be landed at Aden suffering from blood-poisoning contracted from an operation case. Luckily he had so much improved by the end of a week that he was able to proceed to England by the following mail. We offer our congratulations to Colonel Anderson on his fortunate escape from a disease that has carried off some of the very best

members of the Indian Medical Service, and hope he will soon be restored to health

THE BOMBAY GOVERNMENT AND MALARIA

THE following resolution of the Government of Bombay, dated the 5th May 1909, is published for general information —

"Government recently decided to take action to investigate the causes of the outbreak of malaria in Bombay and to devise measures of prevention for the future, and deputed Captain A G McKendrick, M.B., M.S., Assistant Director, Pasteur Institute, Coonoor, with a suitable staff, to conduct the investigations. Government further decided to associate with Captain McKendrick, a small Committee consisting of the officers and gentlemen named below representing public bodies, whose functions would be to assist with their local knowledge, to advise as regards the execution of the preventive measures which he may propose for adoption, and to communicate with the respective bodies as to any steps that can be taken by them. Captain McKendrick has been recalled to Coonoor. His work will be carried on by another expert

The Municipal Corporation, Bombay	Mr. W. D. Sheppard, I.C.S., Municipal Commissioner for the City of Bombay
The Bombay Port Trust	Mr. W. C. Symes, one of the Port Trustees
The City of Bombay Improvement Trust	The Chairman of the Board
The G. I. P. Railway Company	Mr. A. Munro, General Traffic Manager of the Company
The B. B. & C. I. Railway Company	Dr. A. H. Derne, Chief Medical Officer of the Company

It is estimated that the total cost on account of the Special Officer with his establishment will be about Rs 20,000. Government are prepared to provide one-half of the total expenditure necessary, and in view of the importance of the enquiry to the health of the Island, asked the Municipality, the Port Trust and the two Railway Companies to make up the remaining moiety by contributions. The Bombay Municipality, the Port Trustees and the B. B. & C. I. Railway Company have promised contributions of the amounts shown below towards the estimated cost. They should be requested to pay these amounts into the Government Treasury. The G. I. P. Railway Company are unable to make any contribution to the cost of the enquiries."

	Rs
The Bombay Municipality	4,000
The Port Trustees	4,000
The B. B. & C. I. Railway Company	1,000

Reviews

Snake Poison Messrs. Macmillan & Co have recently published in book form the various papers presented to the Royal Society by FAIRER, BRUNTON and ROGERS on the subject of snake poison.

WERE the anti-vivisectionists possessed of even a modicum of commonsense, we might venture to hope that the perusal of this book would gratify, not their morbid curiosity, but their humanity for the descriptions given of the carefully designed experiments performed on all kinds of animals, with a view to the ultimate

benefit of the human race, might go far to convince them that vivisection is not only permissible, but in the highest sense of the term a duty which the scientist owes to his fellows.

It was only after the most exhaustive trials of various antidotes that it was established beyond doubt that the use of potassium permanganate, first tried by Fayet, but elaborated by Lacerda, is the best means of combating the fatal influence of the poison, best because quietest and easiest of application. All honour to Brunton for his ingeniously simple lancet with crystals-holder.

Had the Act regulating experiments on animals not come into being to disfigure the English Book of Statutes, many valuable lives that have been sacrificed in India might have been saved, for to quote the concluding sentences of the work before us "It is worthy of note that the earlier experiments of the first two authors [Fayet & Brunton] were stopped nearly 30 years ago by the Act for regulating experiments on animals in England, but for which this logical sequence of their earlier work might very probably have been made many years ago"—W. D. S.

Bier's Hyperæmic Treatment—By WILLI MEYER, M.D., and Prof. Dr. VICTOR SCHMIEDEN. Illustrated Philadelphia and London, W. B. Saunders Co 1908.

IN this book, which is illustrated by 95 engravings, there are set forth in minute detail the principles and practice of what Bier has practised for the last fifteen years—the method of treating inflammatory changes by inducing hyperæmia of the affected part.

Full directions are given as to how, when, and how often the venous hyperæmia should be induced by means of rubber bandages or suction-glasses, and the arterial hyperæmia by the enclosure of the affected part in a hot-air case.

Briefly we may formulate the results arrived at by saying that the *color*, *calor* and *tumor* are increased, while the *dolor* is lessened and the cure hastened by this hyperæmic treatment. It is easily carried out in India, and is much appreciated by even the most ignorant of our patients.

It is a distinct advantage to have a good paper, clear type, and clear illustrations in a book to which one has in one's work to refer frequently.

Pulmonary Tuberculosis and its complications, with special reference to Diagnosis and Treatment, for general practitioners and students.—By S. G. BONNER, M.D., with 189 original illustrations, including 20 in colours and 60 X-ray photographs. Philadelphia and London, W. B. Saunders Co 1908.

THE 762 pages of letterpress of this work set forth all that is known about the causes, symptoms, prognosis and treatment of tuberculosis. The relations of human and bovine tubercle bacilli, the modes of infection of the organism—hereditary, respiratory, and digestive,

the influence of race and geographical distribution, the morbid anatomy, and semeiology of the disease, its course and termination—these points are treated most fully. Tuberculosis of the lymphatic system, of the bones and joints, of the intestines, and of the genito-urinary organs and the skin—nothing that could possibly be of service to the practitioner has been omitted. The subject of treatment is set forth with great detail indeed, the fact that infinite detail in treatment is a *sine quâ non* is insisted upon. We can praise this work no higher than by saying that its clearness reminds us of the best writings of the French, and its thoroughness of the best writings of the German schools. Messrs. Saunders have done the book justice, the illustrations being beautifully executed.

A Text book of General Bacteriology.—By EDWIN O. JORDAN. Chicago: W. B. Saunders Co. 1908.

THE writer has produced this work as a result of his experience in teaching Bacteriology in the University of Chicago as a general introduction to the subject with special emphasis on the general principles of bacteriology.

It is much on the lines of other text books on the subject, and includes the sections on general technique, structure and effects of varying conditions on bacteria, immunity, etc., and then goes on to give a systematic description of pathogenic organisms. Pathogenic disease producing protozoa are dealt with somewhat briefly, although this section is well up to date. Chapters on bacteria and the nitrogen cycle, in arts and industries and bacterial diseases of plants are also dealt with, thus completing a comprehensive survey of bacteriology. References to a number of specially important papers are given at the foot of each page, which will allow the student who has access to a library to pursue further studies on any particular point, this being a valuable feature of the book. We have carefully examined more especially the sections which deal with diseases of most importance in tropical countries, and found the information given to be accurate and up to date and clearly expressed. There are numerous good illustrations, including a few coloured ones of bacteria. The plate illustrating malarial parasites is from photographs and is uncoloured, and would be of little help in practical work. We have formed a high opinion of the work as a whole, and is a valuable introduction to the subject, which may be confidently recommended to students and practitioners.

Gunshot Wounds.—By C. G. SPENCER, M.B. Lond., F.R.C.S. Eng., Major, R.A.M.C., Professor of Military Surgery, Royal Army Medical College, London. Henry Frowde Oxford University Press, Hodder and Stoughton, Warwick Square, E.C., 1908. Pp. 287. 12 Plates, and 20 other illustrations. Price 5s.

THIS book is one of the Series of Oxford Medical Manuals. It is based on lectures given

at the Royal Army Medical College, London, and claims to be an introduction to the larger works on the subject. The Boer War and Russo-Japanese War have provided us with a wealth of material, enabling us to discuss with considerable accuracy, the effects produced on human tissues by modern bullets and other projectiles. The well-known works of Stevenson and of Makins deal with the subject more fully, but this manual is in every way an excellent work, though on a much smaller scale. An introduction is first given, dealing with the mechanics of modern projectiles, and the second chapter deals with the general character of gunshot wounds. The remaining nine chapters discuss the character and treatment of wounds of the various important structures of the body—such as, blood-vessels, nerves, bones, joints, etc.

This manual will be much appreciated by medical officers of the services, and it will have an even wider scope, as every surgeon should have some knowledge of this subject. Many questions of treatment of wounds in the field have been revolutionized within the last few years, while in some instances we have found that we have not advanced as far as we imagined. For instance, before the Boer War many surgeons believed that with modern aseptic methods most, if not all, penetrating wounds of the abdomen should be treated by abdominal section. The experiences of that war, however, proved that laparotomy in the field is justified only in exceptional circumstances.

Principles and Practice of Physical Diagnosis. By JOHN C. DACOSTA, JR., M.D., Chief of Medical Clinic and Asst. Visiting Physician, Jefferson Hospital, Fellow of College of Physicians of Philadelphia, etc., with 212 original illustrations. Messrs W. B. Saunders Co. 1908. Pp. 548. Price 15s. net.

THIS new volume on physical diagnosis has been written with the purpose of presenting, within reasonable compass, the principles and application of this method of research to the study of thoracic and abdominal diseases. Both junior and senior students are catered for. To meet the requirements of the former, special consideration is given to clinical anatomy and to the origin, mechanism and meaning of normal physical signs, while, in order to guide those farther advanced in the study and practice of medicine, the subjects of pathology and diagnosis are accorded commensurate prominence. Throughout a consistent endeavour is made to keep in view the prime importance of interpreting morbid objective data, on the basis of pathological cause and physical effect, and to analyse such findings in the light of a full clinical enquiry.

The subject-matter is based primarily upon the author's lecture-notes, the views expressed are moulded on an experience of ten years' clinical and tutorial work.

The volume is profusely illustrated, patients exhibiting typical clinical conditions have been photographed.

There are many other illustrations to assist the reader in mastering the text. We cannot altogether say we admire the somewhat original method of illustrating the sites of disease and locality of physical signs by means of reproductions of the nude female figure, surely, the ordinary diagrams would have done equally well.

The book is divided into eight sections dealing with the technic of physical examination and the application of its principles to the thorax and abdomen. A very full and comprehensive description of everything known pertaining to the diagnosis of diseases in these regions is given, and the reader will find many useful practical hints in the detection of lesions of the different organs.

The book should be of great service to junior and senior students of medicine and can be thoroughly recommended to them as a useful guide in the search for knowledge.

Retinitis Pigmentosa With an analysis of 17 cases occurring in Deaf-mutes By WILLIAM T. SHOEMAKER, M.D., Philadelphia, with illustrations and three coloured plates. Philadelphia J. B. Lippincott Co., 1909.

THIS is an essay for which was awarded the Alvaenga Prize of the College of Physicians of Philadelphia in July 1908, and is based on observations made on deaf-mutes in an institution under the author's care over a series of years. It is accompanied by an elaborate series of blood and urine analyses made by Dr. John M. Swan which are of interest, but which throw no fresh light on the cause or diagnosis of the disease. Retinitis Pigmentosa sine pigmento of which one frequently hears, the author regards as merely an early stage of the disease, and states that in such cases the pigments will appear sooner or later. The disease is so constantly bilateral that limitation of the disease appearances to one eye is presumptive evidence of its being due to choroiditis, probably syphilitic in origin, and not to congenital pigmentary degeneration. The statement is made that Macnamara found the disease "very prevalent among Hindus, with whom consanguineous marriages are strictly prohibited by religion." It would be interesting to know whether Macnamara found the disease frequently uni-lateral or not. Such cases due to syphilis closely simulate true retinitis pigmentosa in their ophthalmoscopic appearances. Similar appearances are also met with in eyes in which the cataractous lenses have been couched. A series of useful references closes the book. We think, however, that references might have been made to Nettleship's researches into the heredity of the disease and to the improvement of vision that follows extraction of

the posterior polar cataract when present. The book is an excellent summary of our present knowledge of the disease.

Correspondence

MALARIA IN INDIA. WHAT CAN THE STATE DO TO PREVENT IT?

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—In his letter published in the *Lancet* of April 10th Professor Ross criticizes a paper read by one of us at the Bombay Medical Congress last February. We think that some of his remarks may cause those who have not read the original paper and the discussion thereon to believe that we are attempting to obstruct the progress of anti-malarial work in this country, and since such a misinterpretation of our attitude would be detrimental to the interests of that work, we beg that you will permit us to lay before your readers a complete but necessarily much condensed statement of the most elementary and essential features of the Indian problem. The standpoint from which the subject of the prevention of malaria in India is regarded by Professor Ross and some other critics in England differs entirely from the point of view from which it has to be approached by Indian workers who are aware of the nature and magnitude of the task to be dealt with, and we believe that if by this communication we are able to induce even a few people to survey the subject from the outlook of local knowledge and experience, we shall have contributed to the discussion in a more useful manner than if we had undertaken the trivial task of replying in detail to each of the criticisms brought forward by Professor Ross.

It is exceedingly easy to enumerate the different measures that research and experiment have proved to be of value in the prevention of malaria. It is exceedingly difficult, when we come to actual practice to suggest a rational scheme of anti-malarial sanitation suitable for India.

In the first place we think we are justified in saying that very few realise the magnitude of the task of controlling malaria in India. It is a task vastly greater than any similar one yet attempted or likely in the immediate future to be attempted in any part of the world. As regards British territory alone, the problem relates to an area greater than Germany, France, Spain, Norway, Sweden, England, and Italy together and to a population which, excluding Russia and Austria-Hungary, nearly equals that of the whole of Europe. A single malarious town in the Punjab (Delhi) has a population more than five times that of Panama, thirty times that of Ismailia and fifty times that of Klang and Port Swettenham. But Delhi would form but an infinitesimal part of the Indian problem.

Again, more than 262,000,000 out of the 294,000,000 inhabitants of India live in villages, of which by far the greater number contain less than 500 inhabitants. Thus it is obvious that any scheme for the mitigation of malaria in India which fails to recognise that the problem is largely one of its mitigation in small villages must be futile. Operations in connection with towns and municipalities represent at most only a very minor portion of the task.

In a country like India financial considerations absolutely forbid the employment of operations involving lavish expenditure. It is useless to cite the operation at Panama as an example to be followed in this country, and no one would do so who realised, for example, that to deal with malaria among the small population of that place required an annual expenditure greater than the total yearly income of the 138 largest towns in the Punjab. In Panama the vast resources of a rich nation were concentrated for a definite and important object on a small area. What we have to do in India is to find out the method which can be applied so as to confer the greatest benefit upon the greatest number. The recommendation that we should utilize simultaneously all methods of anti-malarial prophylaxis, though apparently unanswerable, is in reality begging the question, it assumes that, as in the case of Panama, we are in the position to afford complete operations—that our task is a limited one well within our means. Only complete ignorance of the conditions could lead one to regard the Indian problem as being capable of such an easy solution. On the most hopeful view it can be possible for the State only very slowly to improve matters. It is doubtful if more than a very few yet realise what they mean when they speak lightly of reducing (or abolishing) malaria in India. We are in the position of a man with sixpence who has to choose between a pair of boots and a loaf. He has to put aside the thought of the boots and maintain his life

for the present with the loaf. We have dealt with this point at some length because we think it very important that the issue should be clearly realised.

This brings us to a consideration of what the State can be expected to do. Should it concentrate its energies upon some examples of anti larval operations with a view to show that it is possible to reduce malaria—in the hope that measures found effective in these instances will eventually be applied generally throughout the country? Should it restrict itself to the mitigation of the disease in the large cities or in the smaller towns and municipalities, or only in cantonments, or ought it seriously to attempt to reduce mortality in the villages, which we have seen are the localities in which the vast majority of the population of India live? The answer to these questions is of the first importance.

Clearly demonstrations of success in anti larval operations cease to be of value when their cost is such as to prohibit their general employment in India.

When mosquito destruction was first advocated as a means of getting rid of malaria, it was thought that in nearly all malarious places the task would be exceedingly easy and very cheap. It was obvious that if it could be shown that anopheles mosquitoes and malaria can be reduced by the efforts of a few labourers banded together to form a body styled a "mosquito brigade," this would be the only right method of reducing the disease, it would be a method capable of adoption in every malarious town and village in India.

It is well known that in 1901 experiments with this method were begun by the Royal Society's Commissioners at Man Min. This place consists essentially of a group of villages very similar to those met with throughout the Punjab and in other parts of India, but it possesses advantages over other groups of villages in that it has a piped water supply, a surface drainage system, and good roads. It is also an exceedingly dry place. For these and other reasons the Commissioners considered that if in any part of India mosquito destruction operations would be easy, it would be here.

Operations by such measures as can be accomplished by "mosquito brigades" were carried out with great thoroughness from 1901 to 1903, but they did not affect appreciably either the numbers of anopheles mosquitoes or the prevalence of malaria. In 1904 the military authorities decided to continue the experiments on a much larger scale. In addition to extending considerably the work done by mosquito brigades, they carried out further engineering works of surface drainage and completely abolished irrigation in the cantonment. These later efforts, like the earlier ones, have not resulted in an appreciable diminution in the prevalence of anopheles or malaria in the cantonment, and in the autumn of 1908 it was visited by an epidemic of the disease probably more severe than any previously experienced.

It is true certain demonstrations outside India have been held to establish the value of anti larval operations, but they fail to help in the present problem because—

(a) The areas dealt with have been, comparatively speaking, very small.

(b) The cost (in some cases several pounds sterling per head of the population) has been very great.

The following figures illustrate these two points —

Place	Population	Cost per head	REMARKS
Ismailia	6,000 7,000	65 frs initial 23 frs annual	} Exclusive of quinine Ditto
Klang and Port Swettenham	4,000	£2 10 initial	
Panama	40,000	£ 10 per head annually	Inclusive of medical and sanitary ex- penditure

(c) In every instance quinine prophylaxis was very actively pushed and it is at least as likely that the reported reduction in malaria was due to this method as to the anti mosquito operations. At Ismailia, for instance, in 1903 and 1904 the cost of the quinine used prophylactically was more than 2 francs per head of the population during each year. Italy produces the same effects with quinine alone and at less cost.

(d) The only country where the conditions approximate to those of India is Italy, and in Italy anti larval operations have been abandoned in favour of measures which experience has shown to be more effective.

We see, then, that anti larval operations are costly and not easy of assured success. It may in fact be regarded as established that for Indian villages and for rural conditions generally anti larval operations are not feasible. Even the small towns present much more serious problems than is usually supposed. The great majority are only large villages and it is very doubtful whether many of them could hope ever to control malaria by anti larval operations or even

expend a tithe of the amount required to produce any effects by operations of this kind. The majority can only imperfectly meet the expenditure on the simplest sanitary requirements.

Unless the State then is prepared to leave rural India altogether out of account, and to risk what will be nothing less than an enormous experiment in regard to small towns, it must turn its attention and exercise its chief expenditure in systematically endeavouring to extend the benefits of quinine. Among many other advantages this system is the only one which cannot possibly be shown to be valueless by future advances in knowledge, moreover, it is cheap, is understood by the people, and is so willingly accepted by them that even in the present state of education they are ready to pay for it, it is the method which after much trial and experiment has been adopted on a national scale for the prevention of malaria in Italy, and is the one which is regarded by Dr Koch and other eminent German scientists as far preferable to any other, it has already been tried on a small scale with success in India and only needs to be taken up seriously and enthusiastically to become a great power for the mitigation of malaria in this country. What is essential, however, is that attention should not be diverted from the manifest advantages of this method by the many recommendations which are constantly being received in India to the effect that the destruction of mosquitoes by drainage operations should be the chief feature of malarial prophylaxis. One can imagine, for example how great would be the benefit to the people of Bengal if the money which it has been proposed to expend on the drainage schemes enumerated in the report of a recent Drainage Committee were spent upon the extension of quinine administration and the thorough organisation of a system for this purpose on the most favourable view it is extremely doubtful whether any mitigation of malaria would result from the drainage schemes, but on any view it could not be doubted that great benefit would accrue from the expenditure of so much money on the organisation and carrying out of a proper system of quinine administration. At the present time quinine prophylaxis, when employed in India, is carried out in a slipshod and haphazard manner, because it is felt that chief attention should be directed to anti larval measures. One has only to read reports upon cantonments by medical officers in India to realise how the insistence upon anti larval sanitation has delayed the use of more suitable methods.

One other feature in which the problem for India demands special consideration is that at present not only is our knowledge of the epidemiology of malaria in India very limited but we scarcely know sufficient about the conditions under which malaria occurs to justify any Government in ruling large sums to be immediately and blindly expended upon anti mosquito work. It is in fact not true to represent the case so that it appears that no further enquiry or research is necessary or that all the State has to do is to vote the money.

We are aware that India as a whole is not intensely malarious there are wide tracts of country where the disease, though present is not markedly interfering with the prosperity and natural increase of the population. In such areas special action for the reduction of the prevalence of malaria is unnecessary, the disease is sufficiently dealt with by general arrangements such as are taken for the mitigation of other diseases.

Secondly there are areas where malaria is constantly present to a moderately intense degree, and, thirdly, there are areas in which the disease can only be described as decimating the people and converting once populous and prosperous districts into sparsely peopled and decayed ones.

It is upon such areas as the last—where malaria is present in intensified and epidemic form and is acting as a pestilence—that attention should be first concentrated. Such epidemics have causes which can be traced and even at present it is known that the factor of anopheles mosquitoes is only one of many that are concerned in bringing about the epidemic result.

In the great industrial centres, for example, we have malarial epidemics whose immediate cause is the immigration under special conditions of non immune people from healthy districts to foci of malaria started by this very process of immigration.* We need not here describe the events and conditions that are concerned in causing epidemics of malaria in such centres, nor need we mention other examples in which recent work has revealed what are the really important factors concerned. It suffices if we emphasise the fact that the prevalence of anopheles though always important, is by no means in every case the most important factor to be considered.

It is not without due reason that Professor Celli lays such stress on legislative amendment of agrarian laws and so on, that he emphasises the fact that in the Roman Campagna

* See a paper on The Human Factor by S. R. Christophers and C. A. Bentley in the Transactions of the Bombay Medical Congress.

malaria is not a result of want of drainage, and that it is one of the diseases to be surveyed from the outlook which will give the widest possible view if we ever hope to control it

No cut-and-dried scheme that is not doomed to enormous waste of expenditure can be organised at once. Each district of India is probably a problem requiring study in itself a study whose object is not in one sense scientific research but simply the getting of information absolutely necessary to action.

We must know —

1 What parts of India are specially dangerous as foci disseminating malaria and what parts are likely to become so

2 In what parts of India should an attack upon the disease be begun at once, that is, in what parts is the disease most seriously interfering with increase of population and general prosperity?

3 In what parts of India is it unnecessary to take special action at present?

4 What are the conditions at any place or in any tract it is desired to take in hand? For, in the absence of accurate knowledge one cannot possibly decide upon the feasibility or suitability of proposed measures.

All that one can say at present is that the first step should be some sort of organisation for first enquiring into and then dealing with malaria for bringing to notice at once the occurrence of epidemics, or even for foretelling their advent so that by action taken on such intelligence their effects may be minimised. There should exist also a definite system or code of rules for dealing with such outbreaks by the best methods. Such a code can be arrived at only by gradual experience.

To attack a temporary epidemic due to temporary causes by cut and dried operations, to allow a focus of malaria to form, as has happened recently at Bombay, and then to attempt to control it, would not be one of the blunders of such an organisation.

In conclusion, then, we have on the one hand the advice to start here, there, and everywhere, in India, anti-malarial campaigns essentially anti-larval in character on the type of the operations at Panama, etc. We can only say that such advice appears to us only possible of contemplation with a superficial knowledge of the Indian problem. We indeed would give advice fundamentally different. We believe the Government would be wrong to adopt methods so diametrically different from those now carried on with such excellent results by the Italian Society who in practical malarial sanitation (especially in that dealing with agrarian conditions) and in national malarial prophylaxis are far in advance of present English ideas.

But for so long as anti-larval operations with their comparatively enormous expense and uncertain results form, as it were, the necessary and conventional basis for every endeavour to control malaria under every condition, for as long, we believe, will the real attack upon malaria in India be delayed.

We know that the expense of anti-mosquito operations is very great and that for application to rural areas they are utterly unsuitable. At present expenditure upon such operations is not justifiable except on the view that further experiments are desirable and that the expenditure is for the purpose of those experiments. In the meantime it is desirable that attention should be concentrated upon quinine prophylaxis in accordance with methods that experience has already shown in Italy to be best adapted for the prevention and mitigation of malaria on a national scale.

Holding such views it is not surprising that we look upon the prominence given by Major Ross to the necessity of anti-larval operations for India and his insistence on the simplicity of the task as prejudicial to progress and we cannot see that by bringing forward what is to us the facts in regard to Mian Mir we are hindering advance. Our view is that by stating the truth regarding such operations we are combating to some extent the great misfortune that India has for some years laboured under from the continual advertisement of anti-larval measures as the only right method of getting rid of malaria. Mian Mir is to us not a test case as to whether successful anti-larval measures are possible, but one relating to the feasibility, even the relative advisability, of anti-larval operations as the most important line of attack in India. It is apart from useful argument to insist that Mian Mir is still inadequately drained. It is of course obvious that the anopheles now apparently present in undiminished numbers breed somewhere, and very likely that they breed in sheets of water during and after heavy rain. The fact that a very energetic campaign failed to control such conditions indicates an amount of difficulty in dealing with malaria under such conditions at present realised by few. Yet these conditions are, so far as we can see, not more difficult than will be met with in almost every place where malaria is severe in India.

It will serve no useful purpose to gloss over these difficulties and to create the impression that the problem of malarial

prophylaxis in India is a simple and easy one, when it is in reality complex and difficult.

SIMLA,
26th May, 1909 }

We are, Sir,
Your obedient servants,
S P JAMES,
MAJOR, I.M.S.,
S R CHRISTOPHERS,
CAPTAIN, I.M.S.

"MALARIAL PREVENTION"

To The Editor of "THE INDIAN MEDICAL GAZETTE"

SIR, — I shall be obliged if you will allow me space for a few remarks with reference to the interesting discussion on Malarial prevention which took place at the recent Bombay Medical Congress. It is probable that others who were present on that occasion may have been taken somewhat by surprise, as I must admit was my own case, and I fancy also that there must have been a considerable number whose experience would have agreed with mine in supporting Professor Ross' views, broadly speaking as contrasted with those of the quinine school. But it is not easy to marshal one's arguments to meet an unexpected line of attack, and the discussion had in this instance, it seemed to me, got into a "cul de sac" from which it would have been difficult to recall it. Professor Ross had indeed admitted that all available means of prevention should be made use of though at the same time laying very great stress on mosquito destruction, but his opponents, as far as I could gather, had little or nothing to say in favor of this measure, and pinned their faith almost entirely on quinine. Now this, I would urge, is not the right way to approach the subject. A very distinct dividing line may be drawn between irrigated tracts and large areas of marshland, such as I understand, are to be found in the Roman Campagna, on the one hand, and the average Indian station or native town, such as I have seen it in the Deccan and Gujarat, on the other. It may or may not be practicable, with the means at present at our disposal to deal effectively with the former conditions on Ross' lines — probably not, as most of the speakers seemed to agree — but so far as my experience goes it emphatically is possible to effect a very great change for the better by mosquito destruction in localities of the second class. Working on a small scale I have personally achieved the best results in two district prisons, and in other localities not so easily controlled, the effect being demonstrable, not only in the almost complete disappearance of mosquitoes, which were previously present in swarms and caused great annoyance, but also of the disease to which they gave rise, and in addition to these instances, it is easy to call to mind places where one could point with certainty to some dominant factor in the situation, to deal with which would obviously solve the whole question for that particular area, and would ensure the absence of any natural breeding water in it. For instance, I know of one very malarious town of some 5,000 inhabitants, which is traversed by a nullah continuing for the greater part of the year almost stagnant water, and surrounded by a dry expanse in which, except for a few mud holes, mosquitoes can find no breeding water. Can anyone doubt that under conditions such as these anti-mosquito operations would be of the greatest use? This is a state of things which is very common in India — perhaps the most common of all, and yet the advocates of quinine prophylaxis appeared to leave it out of consideration.

It is a curious reflection that a casual visitor, perhaps even our distinguished guests from the Philippines and elsewhere, must have left the malarial section of the Congress under the impression that the Ross School was without honor in this country, and it is partly for this reason and partly also because of the very unfortunate effect which the trend of the discussion may have on local authorities and the Government to which we have to appeal for funds to undertake anti-mosquito measures, that I should like to place my own views on record.

Professor Ross himself seems to partake of this impression and to believe that little or nothing is being done in India on the lines recommended by him, but in this I am convinced he is entirely wrong. Is there a Civil Surgeon in the country who does not — if only in his own compound — undertake anti-mosquito operations if so, he is either a very fortunate or else (in my view) a very misguided man. On the contrary, I imagine that by this time such methods are regarded as so much a matter of course, and their utility, under ordinary conditions in the average station, is so well recognised, that nobody troubles to write about them. And the credit of this lies with Professor Ross, who had at the beginning to fight a very uphill fight to get a hearing at all, and is still, it would appear, liable to be called out for service in the same cause.

I am, Sir,
Yours faithfully,
A HOOTON,
MAJOR, I.M.S.
Agency Surgeon, Kathiawar

RAJKOT, KATHIAWAR, }
24th April, 1909 }

CATARACT OPERATIONS IN OUTLYING DISPENSARIES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—There appeared an article in the *Indian Medical Gazette* of December 1907 which I hoped would have been criticised by some more able pen than mine. It is only because I think this sensationally headed article should not be allowed to pass unnoticed that I now address you in the matter. I refer to the article by Captain Gidney, I M S, headed "Sixty one eye operations in one day."

Captain Gidney remarked that he wrote the article in reply to many letters of enquiry which he had received from several members of the service and others asking him for information on the various details in connection with eye surgery in the mofussil. If those enquirers had asked for this information through the columns of the *Indian Medical Gazette* perhaps they would have got useful advice from Civil Surgeons of experience, and this advice would on the whole, if not wholly, have been against operating on cataract cases in outlying dispensaries.

When I first joined the civil department I, too used to operate on eye cases in the district but I soon abandoned the practice in the case of cataract, and on discussing the matter subsequently with several experienced Surgeons, I found that they too had given it up because the results were not good.

A further reason against it is that cataract cases away from headquarters, if they think there is a chance of the Civil Surgeon coming round their way to operate, will wait for the uncertain appearance of the Civil Surgeon instead of going to headquarters to be operated on under favourable circumstances.

In the Kotah and Jhallawar Agency in Rajputana several Agency Surgeons in succession including myself had tried and given up extracting cataractous lenses at outlying dispensaries. When, after some years, I went back to Kotah, I found a much better system in vogue. The Agency Surgeon during his tours selected cases fit for operation which were subsequently sent to headquarters by arrangement with the state officials and at the expense of the state.

Colonel Macwatt, now Residency Surgeon, Jodhpur, and Major Kilkelly, now Ophthalmic Surgeon, Bombay, worked this method so successfully that I found comparatively few cataract cases left. I think both of these experienced Surgeons will bear me out in my contention.

A layman talking to me about Captain Gidney's article made the very natural remark "I would not care to be the blist case." For my part I would not care to be any one of a series operated on in a dispensary away from headquarters and subsequently treated, if at all by an inexperienced hospital assistant. I make no reflection on Captain Gidney's specially trained assistants, the fact remains that most hospital assistants at district dispensaries are not capable of properly carrying out the after treatment of a cataract extraction case. As to results, Captain Gidney writes as follows: "Even 90 per cent success would satisfy me in my mofussil eye work (considering how severely we are handicapped) and would not deter me from continuing as I am now doing." I venture to think that any operator of experience (from our Indian standpoint) would be fortunate to get even 80 per cent of successes when operating under such conditions as Captain Gidney describes.

In the ophthalmic number of the *Indian Medical Gazette* there are a good many tables of statistics of cataract extractions to which I would refer anyone who is interested in this point. During 1903 and 1904 the percentage of cataract cases "cured" in the United Provinces was 89.1. Knapp in the "System of Diseases of the Eye—Nott and Oliver" has the following conclusion on the results of cataract extraction: "From these and many other reports we may put down the results of cataract extraction collected from a few weeks to a few years after the operation: an average as follows in uncomplicated cases failure 3 per cent, moderate result 7 per cent, good result 90 per cent, in all cases as they occur, failure 5 per cent, moderate result, 10 per cent, good result, 85 per cent."

Finally, what would a European ophthalmologist think on reading Captain Gidney's article? It would surely but increase the scepticism with which he is apt to regard our work. It is difficult for us to be exact and scientific in our ophthalmic work when this as a rule forms but part of our varied duties, do not let us go out of our way to be casual and slipshod.

SPECIAL ARTICLE

ON SOME OLD EIGHTEENTH CENTURY LISTS OF THE I M S

By D G CRAWFORD,

LT COL I M S,

Civil Surgeon, Hooghly

I—BENGAL

(Continued from page 236)

THE fourth list, that of Brigadier-General Giles Stibbert, officiating Commander-in-Chief,* was compiled in connection with a question of as much personal and of far more general interest than that of relative seniority. This was the question whether officers of the Medical Department were Civil or Military Officers—a question which has recurred at intervals ever since, during the period of a century and a quarter since General Stibbert discussed it, and which, for the last century, has always been decided in the same way, and finally so settled. This decision is, that officers of the I M S are all primarily military officers, that those in civil employ are only lent temporarily for civil duty, in which they form a reserve for the army, and that they are all liable to recall to military duty at any time.

The Medical Department was, however, on two different occasions, in the first half century of its existence, divided into two separate services, Military and Civil. On neither occasion did the separation last long.

In 1766, less than two years after its first formal constitution, the medical service was divided into two branches, Military and Civil.

The public proceedings of 5th May 1766, quoted in Long's Selections † No 851, pp 439, 440, contain the following order—

"The President informed the Board that, at the recommendation of Lord Clive and General Carnac, the Select Committee had come to a resolution of proposing that the Surgeons should be formed into two separate Corps, one for the Civil, the other for the Military Establishment and by way of encouragement for Surgeons who can be depended on to remain in the Army, that the two Head Surgeons at the Camp should have the same indulgence in a share of the Salt Trade and privilege of the Dustuck ‡ as the other four Head Surgeons at this settlement."

* Giles Stibbert became Lieutenant in 1758, Captain on 1st May 1759, Major on 22nd May 1764. He served as Provincial Commander in Chief of the Bengal Army from 16th October 1777 to 25th March 1779, and from 27th April 1783 to 21st July 1785. He retired on 15th January 1786. During the years 1779 to 1783, Sir Eyre Coote was Commander in Chief, but had been absent in Madras, Stibbert acting for him, for two years previous to his death in April 1783.

† Selections from unpublished Records of Government for the years 1748 to 1767 inclusive relating mainly to the social condition of Bengal, with a map of Calcutta in 1784. Published under the sanction of the Government of India, Calcutta. Office of the Superintendent of Government Printing, 1869.

‡ Dustuck, literally, handclapping, secondarily, passport hence, privilege of free trade.

PARACHINAR,
N W F PROVINCE, } W E SCOTT MONCRIEFF, M D,
9th April 1909 }
Yours, etc,
Major, I M S

The Military and Civil branches of the Medical Service were again united in 1773, less than seven years later.

The Original Consultations of 22nd December 1783 contain the following extract from the Proceedings of 2nd December 1771, and 17th February and 1st March 1773:

On 2nd December 1771 was read a letter from Brigadier-General Sir Robert Barker,* dated 27th October 1771, transmitting a memorial from Surgeon-General Thomas Anderson, chiefly about allowances and rank in the Military Medical Department.

The Proceedings of 17th February 1773 run as follows —

"The Board having duly considered the above representations,† and being sensible that the unequal distribution of the advantages‡ would attend the profession of Surgeon in the different Departments of the service is a great discouragement to such as are fixed in the Military Line, since long once appointed there the greatest application to the duties of their charge and the practice of their profession will not entitle them to be moved into the Civil Line to which the chief emoluments are annexed, and considering further that the license from the Hon'ble the Court of Directors does not fix them to any particular line of service, which seems to imply that they mean no distinction to be made in it

"Agreed that the Civil and Military Surgeons of this settlement be incorporated into one establishment to take rank according to the following scheme, and rise from this time in regular promotion to the different employments specified, but as this rule, however salutary, in future might prove a real hardship to some individuals in the Civil List who might thus find themselves thrown back to an inferior rank, it is agreed that the claims of individuals shall be considered in settling the particular list

One Surgeon General
One Surgeon of the Presidency
Three Surgeons of the Presidency
Surgeon Majors
Surgeons at Subordinates §
Surgeons to the Army
Assistants of the Presidency
Assistants in the Army"

The Proceedings of 1st March 1773 contain a memorial, claiming to retain their appointments in civil employment, dated 15th February 1773, signed by John Armstrong, Surgeon, and by Assistant Surgeons Thomas Hamilton, William Walker, William Burnett, John Stormouth, Robert Bruce, Clement Francis, and James Hunter.

In 1783 Brigadier-General Stibbert again raised the question, and recommended that the military medical service should be again completely separated from the civil, in the following letter:

Meeting of Council held on 18th December 1783

Read letter from Colonel Giles Stibbert, Commander in Chief

* Sir Robert Barker became Colonel on 3rd May 1765 served as Commander in Chief from 24th March 1770 to 22nd December 1773, and resigned in 1775

† i.e., Surgeon General Anderson's memorial and Sir Robert Barker's letter

‡ The word "which" appears to have been missed out in copying

§ At Subordinate Factories

Hon'ble Sir and Gentlemen,

"In your minutes of the 20th October, I observe you have been pleased to admit into the service three more Assistant Surgeons. I must beg leave to point out to you that we have now a greater number of Assistant Surgeons than are required for this establishment. For your information I enclose a list of the Surgeons and Assistants, those employed in the Army are marked with red ink."

"As many inconveniences and much confusion arise from having all the Surgeons in the Company's employ classed as they are at present together, I beg leave to submit to you the propriety of separating the Civil from the Military Department, and confining the Surgeons and Assistants to the lines in which they now are serving, and of specially appointing such as may be hereafter admitted into the service, either to the Civil or Military Department, in which they should rise independent of each other.

"Such a regulation is also necessary to remove a hardship under which the Military Surgeons now labour, by the permission which is given to gentlemen who have risen to the Head of the list of Surgeons, while fixed at subordinate factories without once being employed with the troops, to enter into a military office when it suits their convenience or advantage. As an instance of this I shall beg leave to mention *Mr Hunter*, who till appointed Surgeon Major to a Brigade was constantly employed as a Civil Surgeon at the Factory of Burdwan, and if no alteration is made *Mr Gardner*, who is the Senior Surgeon on the list, but who has never served in the Military, will avail himself of his rank, and claim the next vacant Surgeon Majorship to the prejudice of other gentlemen, who, since their first admission into the service, have been employed in military capacities, and some of them in very arduous situations.

"I have another argument to offer in support of the change, which is, that whilst the whole of the Surgeons are comprised in one class it is not possible to distinguish between such as are entitled to the benefit of the pension, and such as are not a circumstance which the Honourable the Court of Directors in one of their General Letters directed might be particularly attended to.

"Before I conclude this letter, I think it necessary to remind the Board that the two departments were formerly distinct, but joined together some years ago, at the recommendation of Sir Robert Barker, for what reason I know not, but it is evident that the change has been productive of much confusion in the service and an injury to individuals."

FORT WILLIAM, } I have the honor to be, &c
The 12th November 1783 } (Sd) G STIBBERT

The order passed on General Stibbert's letter runs as follows:

"Resolved that no more Assistant Surgeons be appointed. Ordered that the Secretary do refer to the orders of the Court of Directors respecting the Civil and Military Departments of Surgeon being joined, with all the arrangements on this subject."

In accordance with this resolution the order of 17th February 1773, quoted above, was produced, and laid before the Council, on 22nd December 1783, when the following resolution on the subject was passed:

"Agreed that General Stibbert be informed that the Board cannot assent to any alteration in the establishment of Surgeons for the reasons contained in the foregoing extracts."

* This is the fourth list, mentioned above as General Stibbert's

In 1788, the Governor-General, Lord Cornwallis, drew up a long minute on the medical service, which was formally accepted at a meeting of Council held on 24th October 1788. The proceedings of this meeting contain a long series of rules and regulations for the Medical Department. Among other changes, it may be noted that, by these orders, Medical officers of the Company became for the first time commissioned officers, and were granted commissions. Formerly they had been only Warrant officers, serving on warrants. The minute of Lord Cornwallis is appended to the proceedings. Both rules and minutes are far too long to quote here, but the first of the rules is "Rules and Regulations for the Medical Department of the service."

"Article 1st Resolved and ordered that all Medical Gentlemen employed in the Company's service in this Presidency be continued in one General List—that they have commissions granted to them, agreeable to their proper ranks as Army Surgeons and that, whenever employed in the Civil Line, they be considered for the time as lent only to that department of the service, and liable always to be recalled to their duty as Military Surgeons, under the restrictions and obligations of service which are annexed to their Military Commissions."

In 1796 the Court of Directors again ordered the separation of the Medical Department into two branches, Military and Civil. A letter from Court, dated 8th January 1796, embodied in the minutes of Council, Military Department, of 29th April 1796, gives rules for the administration of the Military establishment. Among those relating to the Medical Department occurs the following paragraph:

"That the Medical Gentlemen of the different Presidencies be called upon to declare whether they choose to remain in the situation of Surgeons of the Company's Civil Department, or to attach themselves to the Military Line of the service, under a notification that vacancies in the General Hospitals will, in future, be filled by Medical Gentlemen of the Military Line only."

This order was most unpopular with the officers of the service, who were called upon to choose at once which branch, Military or Civil, they would serve in. All Assistant Surgeons in Civil Stations had to declare, without delay, whether they would remain at their present stations as Civil Assistant Surgeons, giving up all claims to promotion and pension (12), or whether they would resign their Civil appointments and revert to military duty at once, or as soon as called upon to do so. The proceedings of the Calcutta Medical Board of 1st and 21st August 1796 contain a large number of answers. Out of 44 men, fifteen elected to revert to Military duty, and 29, or nearly double the number, to remain in Civil employ, giving up promotion.

(12) At this time only six Civil and Residency Surgeoncies were held by officers of the rank of Surgeon, all Civil Assistant Surgeons reverting to military duty on promotion to the rank of Surgeon. Whether Assistant Surgeons who elected for permanent Civil employ, giving up promotion, were to be eligible for these six appointments, or not, is not clear.

The Medical Board submitted a very strong protest against this order for the separation of the service into Civil and Military branches, which is embodied in their proceedings of 21st August 1796. Their chief argument is that the men in Civil employ form a reserve for the army in time of war. This protest is interesting, but as it runs to nineteen large pages of manuscript, it is far too long to insert here. We may, however, quote the final paragraph:

"Upon the whole, we are of opinion, after an attentive and deliberate consideration of the subject, that the separation "of the two lines of the Medical Department will not only be unproductive of any benefit to the service, but that it will be attended by the loss of some considerable advantages which result from the present mode of allowing the Surgeons to serve in either line indiscriminately as circumstances require. We therefore humbly beg to suggest whether it may not be advisable for Government to suspend putting in force that Article of the Regulations which relates to it, and to refer the subject to the further consideration of the Honourable Court of Directors."

On receipt of this memorial from the Medical Board, the Government agreed to refer the question home again. Minutes of Council, Military Department, of 9th September 1796, published in the *Calcutta Gazette* of 15th September 1796, contain the following resolution—

"Agreed, that the separation of the Civil and Military lines of the Medical Service, which was authorized by the General Letter of the 8th of January last, be suspended until the pleasure of the Court of Directors shall be known, and that the Surgeons and Assistant Surgeons of the Bengal Establishment do continue to rise in one general list, and to be employed either in the Civil or Military branches of the Service, subject to all the Rules and Regulations now existing."

"Agreed that, as by the foregoing resolution all Medical Practitioners employed in the Civil line, will remain liable to be recalled to their duty as Military Surgeons under the restrictions and obligations of service which are annexed to their Military Commissions, they be considered as equally entitled to the same benefits of furlough, and retiring from the Service, which were intended for the Military Surgeons under the orders of the Court of Directors of the 8th of January last, excepting only those Gentlemen who, under the option left with them by the Minutes of Council of 24th of October 1788, have previously resigned all claim to future promotion in the Service."

The Court of Directors, in their letter of 6th June 1798, embodied in the Minutes of Council of 26th November 1798, and published in the *Calcutta Gazette* of 6th December 1798, confirmed the above orders of the Governor-General, and thus the question was finally settled.

Letter from Court, 6th June 1798, para 79 "And having taken into consideration the 11th, 12th, and 15th paragraphs of your Military letter of the 8th December 1796, we hereby confirm your resolutions forwarded on the recommendation of the Hospital Board, that the whole Medical Corps shall continue to rise in one general list, subject as heretofore to all Civil and Military duties, under the existing regulations, and that the Surgeons attached to Civil Stations shall be considered as equally liable with those serving in the Army to be recalled on Military Service, also that they shall on this footing be admitted to the indulgence of furlough and retiring."

Para 60 "The exclusion, however, from these indulgences of those who under the option of the regulation of the 24th October 1788 had previously resigned all claim to future promotion, is strictly proper"

The Bengal Medical Regulations of 1851, Chapter V, pages 44, 45, contain rules practically the same as those of half a century before, on the subject of Military and Civil employ. Indeed, we might say that these rules still remain in force, with two exceptions. *First*, officers are no longer obliged, on promotion from the lowest to the next highest rank, to revert to Military duty as a matter of course. By an order of the Military Department, No 375 of 10th April 1858, full Surgeons were made eligible for the Civil appointments which, before that date, were tenable only by officers of the rank of Assistant Surgeon. *Second*, the option formerly allowed to an officer, when his turn came for promotion from Assistant Surgeon to Surgeon, to decline promotion, and remain permanently in his civil station, resigning all claims to promotion, furlough pay, and pension, no longer exists. The abolition of private trade, and of the rule requiring Assistant Surgeons to revert to military duty on promotion, necessarily led to the abolition of this option, for there no longer existed any inducement to an officer to give up promotion in order to remain in one station. When it was customary for medical officers to embark largely in trade, *zemindari*, or indigo-planting, or in all three, his pay and allowances weighed but lightly in the balance against his other private interests, and it was often well worth a man's while to sacrifice promotion and its other attendant advantages, in order to remain permanently at the place where all his private interests lay.

The question of the permanent separation of the Indian Medical Service into two departments, Military and Civil, cropped up again in the discussion about the amalgamation of the A M D and the I M S, which was proposed after the Mutiny, and again in 1881. On both occasions the proposals were shelved. To go further into these modern schemes would lead us too far from our present subject.

(To be continued)

Service Notes

OBITUARY

SURGEON LIEUTENANT COLONEL JOSEPH BACKHOUS, Madras Medical Service, retired, died at Dublin after a short illness. He was educated in the school of the Royal College of Surgeons, Ireland, and took the diplomas of L R C S I and L K Q C P, with the L M, both of the latter College and of the Rotunda Hospital in 1868, also the F R C S I, in 1882. He entered the Madras Medical Service on 1st April 1869 as Assistant Surgeon, became Surgeon on 1st July 1873, Surgeon Major on 1st April 1881, attaining the rank of Lieut Colonel on 1st April 1889, and retired as Surgeon Lieut Colonel on 1st July 1893. The Army Lists assign

him no war service. Since his retirement he devoted himself to the task of assisting the work of medical charities in Dublin. He was also a strong supporter of the Royal Medical Benevolent Fund of Ireland and of the National Children's Hospital, Dublin.

RETIREMENTS

LIEUTENANT COLONEL ALEXANDER SILCOCK, of the Bengal Medical Service, retired with one of the extra pensions from 25th March 1909. He was born on 22nd September 1856 and educated at Trinity College, Dublin, where he took the degrees of B A, M B, and B Ch in 1880, and that of M D in 1892. He also took the diplomas of L M from the Rotunda Hospital and from the King's and Queen's College of Physicians in 1880, and the D P H of Cambridge in 1893. He entered the I M S, as Surgeon on 2nd April 1881, becoming Surgeon Major on 2nd April 1893 and Lieut Colonel on 2nd April 1901, and was placed on the "selected list" for promotion on 2nd April 1908. The Army List assigns him no war service. Most of his service in India had been spent as a Civil Surgeon in the Central Provinces.

LIEUTENANT COLONEL TERENCE HUMPHREYS SWFENY, of the Bengal Medical Service, retired with one of the extra pensions from 1st March 1909. He was born on 15th July 1856, educated at St Vincent's Hospital, Dublin, and the Royal College of Surgeons of Ireland, and took the diplomas of L R C S I, L K Q C P, and L M in 1878, also that of F R C S I, in 1879. He entered the I M S as Surgeon on 30th September 1878, becoming Surgeon Major on 30th September 1890, Lieutenant Colonel on 30th September 1898, and was placed on the "selected list" on 26th June 1904. He served in the Afghan War in 1879-80 and was present at the operations at and round Kabul, for which he received the medal and clasp. Most of his service, however, was passed as a Civil Surgeon in the North West, now the United Provinces, and for many years past he had been Civil Surgeon of Benares.

SECOND Class Military Assistant Surgeon A G Culpeper made over, and Captain R Kelsall, M B, I M S, assumed executive and medical charge of the Magwe District Jail on the afternoon of the 8th April 1909.

CAPTAIN S H LEE ABBOTT, I M S, has passed the Higher Standard in the Baluchi language.

LIEUTENANT COLONEL R N CAMPBELL, M B, I M S, is confirmed in the appointment of Inspector General of Civil Hospitals, Eastern Bengal and Assam, with effect from the 2nd April 1909.

INDIAN Medical Service—Specialists—The following officers are appointed specialists in (a) Advanced Operative Surgery with effect from the dates noted against their names—

1st (Peshawar) Division, Captain C H Barber, from 10th February 1909.

3rd (Lahore) Division, Captain H R Nutt, from 15th March 1909.

5th (Mhow) Division, Lieutenant A G Coullie, from 27th February 1909.

6th (Poona) Division, Major G Bidie, from 26th February 1909.

The services of Major E Wilkinson, F R C S, D P H, I M S, officiating Sanitary Commissioner, Punjab, are placed temporarily at the disposal of the Government of India in the Home Department with effect from the date on which he may be relieved of his present duties.

CAPTAIN W O H FORSTER, I M S, assumed charge of the duties of Professor of Pathology, Medical College, Lahore, on the forenoon of the 14th of April 1909.

CAPTAIN A G SARGENT, I M S, to act as Civil Surgeon, Aden, *vice* Captain K G Gharpurey, I M S, pending the return to duty of Major A F W King, I M S, or further orders.

ASSISTANT SURGEON P P BALSARA, L M & S, and Captain W. W. Keys M D I M S, respectively delivered over and received charge of the Aden Special Prison on the 13th April 1909, before office hours.

LIEUTENANT COLONEL W B BANNERMAN, M D, I M S, Director of the Bombay Bacteriological Laboratory, has been allowed by His Majesty's Secretary of State for India an extension of furlough on private affairs for three months.

MAJOR J A BLACK, M B, I M S, is appointed to be Chemical Examiner, Bengal, and Professor of Chemistry in the Medical College, Calcutta, substantively *pro tempore*, with effect from the 29th October 1904

THE services of Captain J Forrest, M B, I M S, are placed permanently at the disposal of the Government of Madras

LIEUTENANT COLONEL G F A HARRIS, M D, F R C P, I M S Professor of Materia Medica and Clinical Medicine, Medical College, Calcutta and *ex officio* Second Physician to the College Hospital, is appointed to officiate as Principal and Professor of Medicine, Medical College, Calcutta, and First Physician to the College Hospital, during the deputation of Lieutenant Colonel C P Lukis, M D, F R C S, I M S as Director General, Indian Medical Service, or until further orders

LIEUTENANT COLONEL F J DRURY, M B, I M S Civil Surgeon, Howrah, is appointed to officiate as Professor of Materia Medica and Clinical Medicine, Medical College, Calcutta, and *ex officio* Second Physician to the College Hospital, during the deputation of Lieutenant Colonel G F A Harris, M D, F R C P, I M S, as Principal and Professor of Medicine of that College and First Physician to the College Hospital, or until further orders

THE services of Captain E A C Matthews, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

CAPTAIN F E WILSON, Indian Medical Service, an officiating Agency Surgeon of the 2nd class, is with effect from the 1st April 1909, granted privilege leave for one month and ten days combined with leave out of India for four months and twenty days

MAJOR R P WILSON, I M S, made over charge of the Burdwan Jail to Captain N W Mackworth, I M S, on the forenoon of the 15th April 1909

NOTIFICATION No 117 dated the 12th April 1909, placing the services of Captain W H Hume, M B, I M S at the disposal of the Government of Eastern Bengal and Assam for employment in the Jail Department, is hereby cancelled

CAPTAIN F A F BARNARDO, I M S Officiating Civil Surgeon, Bhagalpur, is appointed to act, in addition to his own duties, as Superintendent of the Bhagalpur Central Jail, during the absence, on leave, of Captain W G Hamilton I M S, or until further orders

CAPTAIN W G HAMILTON, I M S, Officiating Superintendent, Bhagalpur Central Jail is allowed leave for two months, with effect from the 4th May 1909

MAJOR E WILKINSON, F R C S, I M S, Deputy Sanitary Commissioner, Punjab, is appointed to officiate as Sanitary Commissioner Eastern Bengal and Assam, during the absence of Lieutenant-Colonel E C Hale, I M S, on leave, or until further orders

INDIAN MEDICAL SERVICE

Lieutenant Colonels to be Colonels

Dated 14th November 1908

Charles Fancourt Willis, M D

Dated 1st January 1909

William Alfred Corkery

Captains to be Majors

Dated 28th January 1909

Jasper Maxwell Woolley, M B
Clayton Arbutnot Lane, M D
Thomas Bernard Kelly, F R C S F
William Hamilton Kemick
Charles Henry Watson
Edgar Francis Eardley Baines
George Orr Fern Sealy
Samuel Anderson, M B
Francis Hope Grant Hutchinson, M B
James Leslie Marjoribanks
Alexander Fenton, M B
Robert Welland Knox, M B

Lieutenants to be Captains

Dated 1st September 1908

Edgar John Cecil McDonald
William Dundas Wright, M B

Dated 1st February 1909

Harry William Pierpoint, F R C S
Khandu Ganpatrao Gharpurey
William David Henderson Stevenson, M B
Henry Patullo Cook, M B
William James Fraser, M B
Desmond Charles Villiers FitzGerald
Robert Siggins Kennedy, M B
Bernard Higham, M B
Charles Aubrey Godson
Reginald Henry Lee, M B
Patrick Hefernan, M B
Henry Stewart Hutchison, M B
Robert George Gibbon Cioley, M B
Stanley Trefusis Clump
William Barbour Alexander Kennedy Cullen, M B
James MacGiegor Skinner, M B

THE King has approved of the retirement of Colonel James McCloghly, F R C S I, dated 13th January 1909

CAPTAIN J MASSON, I M S, reported his departure from India, on leave, on the 25th March 1909

SURGEON GENERAL SIR G BOMFORD, M D, K C I F, I M S (Bengal), Director General Indian Medical Service, is granted privilege leave for one month and twenty two days with leave on private affairs, for six months and eight days in continuation, with effect from the 1st May 1909

LIEUTENANT COLONEL C P LUKIS, M D, F R C S, I M S (Bengal) Principal and Professor of Medicine Medical College Calcutta, and First Physician, College Hospital, is appointed to officiate as Director General, Indian Medical Service during the absence on leave of Surgeon General Sir G Bomford, M D, K C I F, I M S (Bengal), or until further orders

LIEUTENANT COLONEL H W PILGRIM, M B, F R C S, I M S Surgeon Superintendent of the Presidency General Hospital, Calcutta, is, with effect from the 21st April 1909, granted privilege leave for two months and one day with special leave on urgent private affairs for three months and twenty nine days in continuation

MAJOR E E WATERS, M D, I M S, is appointed to officiate as Surgeon Superintendent of the Presidency General Hospital, Calcutta, during the absence on leave of Lieutenant Colonel H W Pilgrim, M B, F R C S, I M S, or until further orders

CAPTAIN FRANK POWELL CONNOR, F R C S, I M S, to be Lieutenant, to fill an existing vacancy in 1st Battalion, Calcutta Volunteer Rifles

MAJOR R P WILSON, I M S, is appointed with effect from the afternoon of the 17th April 1909, to act as Civil Surgeon of Cuttack, during the absence, on leave, of Major F O'Kinealy, I M S, or until further orders

CAPTAIN N W MACKWORTH, I M S, on special duty in connection with plague in the Tirhut Division is appointed to act as a Civil Surgeon of the second class and is posted to Burdwan, with effect from the afternoon of the 15th April 1909

MAJOR E E WATERS, I M S, made over charge of the Cuttack Jail to Major R P Wilson, I M S, on the afternoon of the 17th April 1909

DR J L HENDLEY made over charge of Daltonganj Jail to Assistant Surgeon Apurba Krishna Chaudhuri on the afternoon of the 22nd April 1909

LIEUTENANT COLONEL A H NOTT, I M S, made over charge of the Berhampore Jail to Captain J W F Rait, I M S, on the forenoon of the 3rd May 1909

CAPTAIN F S O THOMPSON, I M S, Officiating Superintendent of the Midnapore Central Jail, is appointed to act as Superintendent of the Alipore Central Jail, during the absence, on leave, of Mr M S Emerson, or until further orders

MAJOR G Y O HUNTER, I M S, Officiating Superintendent, Presidency Jail, Calcutta, is appointed to act, in addition to his own duties, as Superintendent of Jail Manufactures, Bengal, during the absence, on deputation, of Mr G A Davis, or until further orders, with effect from the date on which he assumes charge of the duties

MAJOR E R PARRY, M B, I M S, Superintendent of the Dacca Central Jail is granted privilege leave for one month, with effect from the 1st May 1909, or any subsequent date on which he may avail himself of it

THE services of Lieutenant S B Mehta, F R C S F, I M S are placed temporarily at the disposal of the Government of Burma for employment on plague duty

THE following promotion is made, subject to His Majesty's approval —

To be Colonel

Lieutenant Colonel Robert Neil Campbell, M B, *vice* Colonel D Wilkie M B, Indian Medical Service, Bengal, retired Dated 2nd April 1909

LIEUTENANT COLONEL DAVID WILKIE, M B Indian Medical Service, Bengal, has been permitted by the Secretary of State for India to retire from the service, subject to His Majesty's approval, with effect from the 2nd April 1909

CAPTAIN T H GLOSTER, M B, I M S, on special duty under the Sanitary Commissioner with the Government of India, is granted privilege leave for three months with furlough for nine months in continuation, with effect from the date on which he avails himself of the leave

MAJOR J W CORNWALL M D, I M S, is granted privilege leave for three months, with effect from the date on which he availed himself of it

THE services of Major G Bidie, M D, F R C S E, I M S, are placed temporarily at the disposal of the Government of Madras

THE following transfers, postings and appointments are ordered in the Medical Department —

MAJOR E R ROST, I M S, Junior Civil Surgeon, is placed in charge of the Government Plague Hospital, Rangoon in addition to his own duties, in place of Captain A Whitmore, I M S, transferred

ON relief by Major Rost, Captain A Whitmore is appointed to officiate as Superintendent of the Insein Central Jail, as a temporary measure, in place of Major B J Singh, I M S, whose services have been placed at the disposal of the Government of Eastern Bengal and Assam

MAJOR P P KILKELLY, M B, I M S, is granted such privilege leave of absence as may be due to him on the 15th May 1909, or subsequent date of relief in combination with special leave on urgent private affairs for such period as may bring the combined period of absence up to six months

HIS Excellency the Governor in Council is pleased to appoint Major S H Burnett, M B, C M, I M S, to act as Presidency Surgeon, Second District, and Marine Surgeon, Bombay, and Superintendent, Lunatic Asylum, Colaba, *vice* Captain E F G Tucker, M R C P, L R C P, I M S, proceeding on leave, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Captain W D A Keys, M D, I M S to act as Civil Surgeon Aden, in addition to his own duties *vice* Captain K G Gharpuwry, I M S, pending relief or further orders

LIEUTENANT COLONEL W H QUICKE, F R C S (England), I M S, has been allowed by His Majesty's Secretary of State for India an extension of furlough on medical certificate for two months

CAPTAIN W O'S MURPHY, I M S, has been allowed by His Majesty's Secretary of State for India an extension of furlough on medical certificate for four months

LIEUTENANT COLONEL W H QUICKE, F R C S (England), I M S, has been allowed by His Majesty's Secretary of State for India to return to duty

MAJOR J H McDONALD, M B, C M, I M S, has been allowed by His Majesty's Secretary of State for India an extension of furlough for nine months

IN supersession of Notification No 655 Major H J Walton, I M S Civil Surgeon, Bulandshahr, is allowed privilege leave, combined with furlough and study leave for a total period of eighteen months, from the 23rd February 1909

CAPTAIN C A. GOURLAY, I M S, Deputy Sanitary Commissioner, Eastern Bengal and Assam, is appointed to hold

charge temporarily of the current duties of the Sanitary Commissioner, Eastern Bengal and Assam, with effect from the date on which Lieutenant Colonel E C Hare proceeds on leave

LIEUTENANT COLONEL E A W HALL M B, C M, I M S Civil Surgeon, Dacca, is appointed to hold medical charge of the Dacca Central Jail, in addition to his own duties, during the absence on privilege leave of Major E R Parry, I M S, or until further orders

Notice

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BOOKS, REPORTS, &c, RECEIVED —

- Operative Nursing and Techniques—A book for Nurses Dressers, House Surgeons etc By Charles H Childe, B A F R C S, Eng Messrs Bailliere Tindall and Cox, 1909
- Aids to Medicine By Bernard Hudson, M D Camb M R C P Lond Messrs Bailliere, Tindall and Cox, 1909
- Differential Diagnosis of Bacteria and Practical Bacteriology By L P Minett M D, D P H, M R C P, F C S Messrs Bailliere, Tindall and Cox, 1909
- Asiatic Horns and Antlers, Indian Museum Calcutta. By T Benthall 1908
- The Quarterly Journal of Medicine, Vol II No 7 April, 1909
- Publications of the Research Defence Society, 1908-09 Messrs Macmillan & Co, Ltd 2s 6d net
- Administration Report of Eastern Bengal and Assam 1907-08 Report of the Pasteur Institute of India, 1908
- Saunders Catalogue (Illustrated)
- Mendels Principles of Heredity By W Bateson, M A F R S Camb bridge University Press 12s net
- Rational Immunisation in the Treatment of Pulmonary Tuberculosis By E C Hort B Sc M R C P Messrs John Bale, Sons and Danielsson London 3s 6d net
- The Differential Diagnosis of Fevers By D W Sutherland M D, Major, I M S Messrs Thacker & Co, Bombay
- A Textbook on Diseases of the Ear By Prof Dr Adam Politzer Translated and Edited by Milton J Ballin M D and G L Heller, M D Messrs Bailliere, Tindall and Cox, London 1909 Price 2s net
- Records of the Indian Museum Vol II, Part V Jan'y 1909
- Notes on Sour Milk and other Methods of Administering Selected Lactic Acid Germs By Elle Metchnikoff Paris 1909 Messrs John Bale Sons & Danielsson
- The Present Status of Leprosy Problem in Hawaii The Reaction of Lepers to "Wor's Percutaneous Test and a Note on the Possibility of the Mosquito acting in the Transmission of Leprosy By W R Bruekeroff, M D, M D, Hawaii Washington Government Printing Office 1908
- Sleeping Sickness Bureau Bull No 5, 1909
- A Critical Review of the Relation of Blood-Sucking Invertebrates to the Life Cycles of the Trypanosomes of Vertebrates, etc By Capt Polton I M S and O Strickland B A
- Aids to Forensic Medicine and Toxicology By W Murrell M D M R C P Seventh Edition Messrs Bailliere Tindall and Cox London 2s 6d net
- Lectures to Practising Midwives By Victoria E M Bennett, M B, B S Lond Messrs Bailliere, Tindall and Cox London 1909

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Dr I L Chundra, Calcutta, Capt F P Connor, I M S, Calcutta, Major L Rogers, I M S, Calcutta Major W D Sutherland, I M S, Calcutta Dr Andrews Sec, Manila Medical Society, Dr L I Joshi, Bio chemical Laboratory Bombay Capt J W D Megaw, I M S, Calcutta Capt V B Nesfield, I M S, Assam Capt E O Thurston, I M S, Gaya, Messrs Burroughs Wellcome & Co, London Messrs W B Saunders & Co, London Col D G Crawford, I M S, Hooghly Major Ewen, I M S Lahore Major Scott Moncreff Panchnagar, James I M S Simla The President, Royal College of Physicians, London Dr Upendra Nath Brahmachari, Calcutta, Major S F James, I M S, Simla Capt I C Holdich Leicester, I M S, Simla P C Gilhooly, Bsq Mussoorie Major Davidson, I M S, Chitral Major Burnett, I M S Bombay

Original Articles.

REPORT ON THE RECENT CHOLERA OUTBREAK AMONG THE NURSES OF THE PRESIDENCY GENERAL HOSPITAL, CALCUTTA

By R. MACRAE, VHS, MB,

COLONEL, I.M.S.,

Inspector General of Civil Hospitals, Bengal

CHOLERA outbreaks in Calcutta have happily been less frequent during recent years. The latest, which proved so disastrous to the nursing staff of the Presidency General Hospital, caused great public excitement, which owing to the circumstances and surroundings in which it occurred was to a certain extent natural.

The Presidency General Hospital is the principal European Hospital of Calcutta, and the nursing staff is accommodated in its grounds in buildings known as the 'Canning Home'. The nurses are under the immediate personal supervision of the Clewer Sisters, and are generally supervised by a representative Committee of Ladies and Gentlemen known as "the Calcutta Hospitals Nursing Association". As the investigation and enquiry into the recent outbreak has now been practically concluded, it is desirable for various reasons to publish a statement of the facts elicited. Judging by correspondence in the papers a section of the public appear to have jumped to the conclusion that 'something must be radically wrong' and that 'some one must be to blame'.

There is actually no foundation for this as the following facts will show.

Cholera broke out amongst the members of the nursing staff on the morning of the 30th July, and Major Waters, I.M.S., the Surgeon-Superintendent of the Hospital, reported the fact to me personally the same evening, and informed me of the steps he was taking to treat the sick, and to check the outbreak.

I at once took steps to arrange for an enquiry into the cause of the outbreak and asked Mr. Haffkine, the well-known bacteriologist and a recognised authority on cholera—who was fortunately in Calcutta—to help in the investigation, which was commenced on the morning of the 31st. The hospital staff were fully occupied in attendance on the patients, and Major Clemesha, I.M.S., the Deputy Sanitary Commissioner, assisted Mr. Haffkine, and both he and Dr. Pearse, the Health Officer of Calcutta, made a searching inspection of the nurses' premises, specially the dining room, kitchen and adjoining outhouses. Both Major Clemesha and Dr. Pearse submitted reports which testify to the thorough inspection they made, and the former personally supervised the purification of the nurses' dining and kitchen

arrangements, and the sterilisation of all articles connected therewith.

Before relating the history of the epidemic I may here state that a European patient Mr. D-s was admitted suffering from cholera on the morning of the 29th. He was accommodated in the cholera ward, and died the same evening. He was nursed by two nurses during his short stay in Hospital. Neither of these developed any symptoms of the disease. Mr. D-s contracted the malady outside the hospital and the results of the investigation show that his arrival in hospital was in no way connected with the outbreak amongst the staff.

The following extract from Major Waters' report gives the history of the outbreak—

"In the early morning of 30th July it was reported to me that nurse C-s was suffering from cholera, and that she had been attacked whilst on duty in the Victoria ward. Almost simultaneously reports came in of cases in the nursing quarters, and of a case in the children's ward (Alexandra). The cases occurred so close together that it is impossible to record their exact order of incidence, but approximately it was as follows—

Serial No	NAME	Time of onset	Result
1	Nurse C s	Early morning, 30th July	Died 30th July
2	S I J s (patient, Alexandra ward)	Ditto	Died 31st July
3	Nurse S d	Ditto	Ditto afternoon
4	Nurse W h	Ditto	Recovered
5	Child T H t (Alexandra ward)	Noon, 30th July	Died 31st July
6	Nurse S e	Ditto	Died 2nd August
7	Nurse N y	Ditto	Died 31st July
8	Nurse S k	Ditto	Ditto
9	Sweeper Chedi	Afternoon, 30th July	Ditto
10	Nurse B n	Evening, 30th July	Recovered
11	Nurse K y	Ditto	Ditto
12	Patient G W d (of Alexandra)	Morning, 31st July	Died 1st August
13	Nurse N n	Ditto	Ditto
14	Nurse M s	30th July	Recovered
15	" L e	3rd August	Ditto
16	" C s	Ditto	Ditto
17	" E d	2nd August	Ditto

The above were undoubted cases and were at once admitted to hospital. There were four other cases who suffered from gastro-intestinal trouble, and who I consider were also infected with the disease—

The latter four patients were not seriously ill, though they were unable to continue on duty. They did not seek admission to hospital, but had to be sought out and isolated.

There were thus 17 cases in all, and of the 13 who sought admission to hospital no less than 10 died.

It will be noticed that all the serious cases occurred within 30 hours of one another, and that so virulent was the infection that in the fatal cases death ensued as a rule in less than 24 hours, even though treatment was commenced from the earliest possible moment.

II. *The probable cause*—To a considerable extent this must be a matter of surmise,* for it was impossible to commence the enquiry before the morning of the 31st.

* This was written before Mr. Haffkine's enquiry was completed.

July, and by that time most of the positive evidence was destroyed. It is necessary here to describe certain of the arrangements made for the nurses' meals.

There is a central kitchen attached to the nurses' quarters, and in this all the food supplied to nurses is cooked. Owing to the exigencies of night duty two dinners are served on some days, one at 3 P.M. for those who will go on night duty, and one at 7 P.M. for those on duty in the wards, or resting in the quarters. These two meals are as far as possible cooked at the same time, i.e., puddings, soup, etc., are made in one batch for the two meals.*

The meals for the nurses in the quarters are served in the nurses' dining hall, the 3 P.M. nurses' dinner in the main block, and the 7 P.M. nurses' dinner in the Woodburn ward are supplied from the same stock, and one series of culinary operations covers them all. The persons attacked were—

- (a) Nurses
- (b) A sweeper of the Woodburn ward
- (c) Three patients of (Alexandra) children's ward

Of the affected nurses some dined in the dining hall, some in the dining room of the main block, and some at the Woodburn ward. All partook of the 7 P.M. dinner on Wednesday, July 28th.

The sweeper Chedi was attached to the Woodburn ward, and it was his perquisite to receive the spare or broken food from the nurses' table. I am informed that he received some such food on the 28th evening. The menu for the 28th July was as follows—

Devilled tongue
Veal roast
Stewed fruit
Custard sauce
Cheese

The case of the three children remains to be accounted for, and it is here that actual evidence is most defective. It is obvious that they were infected by the same cause that infected the nurses, and that they must be considered as part of the same outbreak.

There are two ways in which the children may have received the infection: (1) either from the same infected food of which the nurses partook, or (2) it may be that their own regular food supply was infected by the nurses.

With regard to (1) it appears on enquiry that there is some interchange of food between the nurses' dining room and the wards. For example, the nurses occasionally bring some savoury or tempting article of food from their own table to tempt the feeble appetite of convalescents. It is not unlikely that in this instance a little custard sauce, which was one of the things provided on the 28th, was given to some of the children in the Alexandra ward. It is certain that some custard was actually brought to the nurses' room, which opens out of the ward.

The second hypothesis is not quite so likely, though it must be considered. In the Alexandra ward there are usually three nurses, one of whom is specially in charge of the preparation of the children's food. On July 28th the person entrusted with this duty was nurse N-n, who developed cholera on the 31st July. Nurse E-d, the senior nurse, also suffered from what was probably a choleraic attack. Again nurse C-s—the first nurse attacked—had recently been on duty in the Alexandra ward, and there is evidence to show that, as is only natural, she had visited the Alexandra ward on the 28th to see the children whom she had been nursing. Thus three nurses, who were incubating cholera, were actually in or about the Alexandra ward on 28th July.

There are other sources of contagion to be considered.

1. *The filtered water supply*—This is not likely as there was no cholera to speak of in Calcutta, and there were no cases amongst the hundreds of people using this water, nor did the nurses' supply come from the kitchen of the nurses' quarters.

2. *The unfiltered water supply*—This may have been used to adulterate the milk after purchase. We cannot say with certainty, but this is unlikely, for the unfiltered supply was free from cholera organisms on the 31st, and the state of the general public health is opposed to any excessive contamination of this water.

3. *The use of Bazaar milk by the nurses*—This is unlikely. I am assured that it is never done that condensed milk is used for private tea parties, etc. There is no evidence that this theory would account for the simultaneous attacks in the three blocks, and for the illness of the sweeper, and the children.

One is forced to the conclusion that the outbreak was caused by some article of food used at the dinner of 28th July.

It is with food and drink that cholera commonly gains access to the human body, and the almost universal mode is in the drinking water. In the present case there is no suspicion pointing to this, and the chief suspicion attaches to the dinner of the 28th.

The following facts support this assertion—

1. It is certain that all the nurses attacked partook of this meal.

2. The sweeper who was attacked also received a portion of this meal.

3. It is not likely that any meal on the 29th was instrumental in disseminating the infection, for one of the nurses attacked was absent during the whole day, and another attacked was absent from one meal.

4. The incubation period of cholera as stated by the text-books varies from a few hours to a few days, but ordinarily may be put at 1 to 3 days. The probability of the date of infection being about the 28th, is therefore strengthened. All the cases sickened within a very short time of each other and they very abruptly ceased to appear.

5. It is a reasonable conclusion, therefore, that on one occasion only was infected material swallowed.

There is no positive evidence as to which of the dishes in the dinner of the 28th was infected, but the strongest suspicion rests on the custard sauce. It was the only dish that was served cold, and it had been prepared early in the day.

If such an article had been infected, or placed to stand in an infected dish at the temperature of a July day in Calcutta, it is easy to understand how in the course of the day it would become a most poisonous article of diet.

The next point to decide is how it could have become infected.

It is in connection with this that Mr. Haffkine's bacteriological investigations have proved so invaluable. As previously stated he commenced his enquiry on the morning of the 31st. Everything pertaining to food and drink, and to the preparation of these as concerning the nurses, was examined. He collected 127 samples of food, water, and almost every conceivable article from the nurses' kitchen and quarters.

He also took specimens from the discharges of eight patients, five of these yielded comma

* This practice has ceased. The meals are now prepared

bacilli, thus eliminating the possibility of ptomaine poisoning

Of the 127 samples no indication of infection was met with in 113. Fourteen were found tainted with comma bacilli. Seven of these yielded positive results.

These were —

1. Water in the ice chest belonging to the nurses' dining hall. The chest was standing at the time outside the hall, in the open, and had no ice in it. A small quantity of damp sawdust was lying close by on the ground. No comma bacilli were found in the sawdust.

2. Water in a large earthenware chattie in the cook room. In this chattie water is stored from the filtered water-supply. To get water out of the chattie a tin is dipped by hand into it. The chattie is filled from the tap not directly but by means of a zinc bucket, into which the tap water is received.

3. Water in the latter bucket.

4. Water in a large *lotah* standing in the cook room, and containing the supply of raw peeled potatoes for the day's cooking. The peeling is done by hand, the potatoes being put into water to be washed after the peeling.

In the nurses' quarters the contaminated articles were as follows —

5. Remnants of milk in a tumbler on a table at the foot of the staircase on the ground floor.

6. Washing-up water in a zinc bucket standing by the side of the above table.

7. In bed-room No. 8 an uncovered cup containing remnants of milk.

Seven other articles were suspicious without yielding clear results. Mr. Haffkine found that at dinner time drinking-water, which is used by all nurses, is served in the dining hall out of two or sometimes three jugs, one jug to a table of some 14 persons. The water is cooled by ice put into the jug. It appears that the ice supply is in charge of one of the *masalchis* who receives it on arrival, puts it into the ice chest, and deals it out when required.

The peeling of potatoes and other vegetables is also done by the *masalchis* who are four in number.

The washing-up of the dishes and all other articles on which food is served in the dining hall, and of the muffineers used for sending food to the nurses on duty in the wards, is also the work of the *masalchis*.

The examination of all these articles led Mr. Haffkine to suspect some of the servants as being carriers of infection, and he examined the hands of 12 servants connected with the nurses' kitchen and cook room. Of the 12 servants two of the *masalchis* yielded positive results, and their hands were found contaminated with comma-bacilli, which came off easily when brought in contact with the fluid into which he received them.

It then became necessary to ascertain whether the two *masalchis*, whose hands were found

infected, harboured comma-bacilli in their bowels, and the following letter from Mr. Haffkine is conclusive on this point —

"I write to supplement my note of the 8th instant concerning the recent cholera outbreak in the Presidency General Hospital."

*I mentioned in that note that the examination of the articles found tainted with comma bacilli had led me to suspect the *masalchis* of the nurses' cook room, as being carriers of infection,*

*that afterwards comma bacilli were actually found on the hands of two of these men—K—a *masalchi* and M—a *masalchi*—and*

that in regard to one of them, K—a it was ascertained by the Hospital authorities that just before being examined by me he had visited the latrine for defecation purposes, and washed at the place set apart for the servants' bathing.

These latter circumstances suggested that the men or one of them was actually harbouring comma bacilli in their bowels, but when writing my above note of the 8th, I had not yet had time to examine into this question.

On the 9th the two men were given separate quarters away from the other servants and from occupied buildings in the hospital compound and arrangements were made for gathering and examining their discharges.

I had the first stools from them of the 10th and those of the 11th, 12th and 13th.

On the latter date the men left the Hospital grounds in despite of all inducements to stay offered them by Major Waters.

In each of the stools passed by the men I saw under the microscope comma bacilli mixed with an enormous number of other microbes, and I informed you verbally accordingly. I demonstrated these bacilli to Major Waters, but up till yesterday was unable to get them isolated in cultures.

I have now succeeded in doing so, and they have given a pure growth of very typically looking Comma Vibrios. The particular cultures are derived from the faeces passed by one of these men on the 12th instant.

* * * *

*The bacilli isolated from the *masalchi's* bowels correspond under the microscope and in culture to the ordinary Cholera Microbes. Whether they possess the identical pathogenic properties of these I do not know yet.*

I am going to compare them from the latter point of view with the bacilli obtained from the actual patients in this outbreak. The study will take some little time."

From the foregoing the following points may be elucidated —

1. There can be no doubt that the outbreak was not ptomaine poisoning, but one of very virulent cholera.

2 There was a general infection of the nurses to which those susceptible succumbed more or less

3 The centre of infection was in the nurses' quarters and was in all probability conveyed from there to the children's ward of the hospital

4 There is every reason to believe that the infection took place through the medium of some article of food at the dinner of the 28th. The only article served cold was the custard sauce which had been standing for some time

5 Mr. Haffkine's bacteriological investigations appear to be conclusive that the poisoning of the food took place through the medium of the *masalchis*, who themselves were apparently healthy

Professor Koch has shown that at the time of the epidemics in Hamburg in 1892 and 1893 among those who had been exposed to the possibility of cholera infection, and who yet remained apparently healthy there were individuals whose fæces, although hardly diarrhoeic, may quite normal, yet, nevertheless, contained cholera bacteria. He drew the inference therefrom that in an epidemic there are, roundabout the actual sufferers from cholera, a large number who, although apparently free from the disease, are capable of transporting it to fresh places

This observation does not appear, however, to have for some time received any further development

Mr. Haffkine kindly sent me a few days ago the June issue of the *Bulletin de la Société de Pathologie Exotique*, which contains a brief communication on the present cholera outbreak in St. Petersburg, and from which the following extracts are taken—

"We have also investigated the question as to whether there existed apart from drinking-water other modes of transmission—direct or indirect—of the disease. With this view, between the 20th November and 21st February 2,440 stools of persons living in close contact with 600 cholera patients were examined"

Cholera vibrios were found 125 times

Thus for 100 subjects showing the classical symptoms of cholera and isolated in special barracks there are 20 unknown carriers of cholera vibrios. These carriers are thus not isolated and spread unknowingly the disease in their neighbourhood

We divide these carriers into three groups

"The first comprises subjects whose stools were examined while they were incubating the disease (11 men, 10 women, 4 children). Their stools were fluid, their general condition was good at the time when the stools were examined, they fell ill 1 to 3 days afterwards"

"2 Benign symptoms were seen in 40 persons (18 men, 15 women, 7 children). The only signs were fluid stools"

3 Sixty subjects were true vibrio-carriers (20 men, 29 women, 11 children). Their stools were

solid, and well formed. In the subjects belonging to the last two groups vibrios were found only during 1 to 10 days"

These facts observed in St. Petersburg confirm what has been observed in previous outbreaks of cholera, viz., that a number of persons showing only slight or no symptoms get infected at the same time as those who fall ill, and that they harbour the specific germ for some time and get rid of it. I know of no evidence, however, that hitherto appears to have conclusively demonstrated that such healthy persons give the disease to anyone else.

The Presidency General Hospital outbreak is instructive by the series of facts which have shown that such a possibility exists, and Mr. Haffkine has practically demonstrated the actual travelling, so to say, of contagion from the bowels of healthy men to their hands through ablution, from their hands to articles handled by them such as the washing-up water from potatoes peeled by them, to water from ice handled by them and served to other persons, to tiffin muffineers, and no doubt to other vessels and dishes for the keeping and conveyance of food to those who became affected, which were washed by these servants, and to stored filtered water which they fetched by a dipping-tin, while the general water-supply showed no signs of infection.

It is impossible to say how long these *masalchis* have been "vibrio-carriers." There is no doubt that they were so for a longer time than the St. Petersburg cases, and in the latter, as on all previous occasions, such persons were detected during epidemics and probably associated with cholera patients.

In the General Hospital outbreak there was no existing epidemic, the *masalchis* were apparently quite well and had not been away for some months, and there was very little cholera in Calcutta at the time.

It is regrettable that it was found impossible to continue further observations on them, as they became imbued with the idea that they were being subjected to some sort of witchcraft¹ and no persuasion would induce them to remain any longer in Calcutta.

I am indebted to Mr. Haffkine and Major Waters for much of the material from which this report has been prepared.

CLINICAL NOTES ON SMALL-POX *

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(Continued from page 329)

THE next point to which I would invite attention is the fever of small-pox. What is this

* Being a paper read before the Medical Section of the Asiatic Society of Bengal in July 1909

fever? We know that the pyrexia of small-pox is, roughly speaking, divided into two periods. The older writers spoke of the "Fever of Invasion" and of the "Fever of Maturation." Now-a-days we read of the "Toxæmic Fever" and the "Suppurative Fever." The change of name indicates a change in opinion as to the precise nature of the fever. For whereas the older authorities considered that the fever of the first period, the fever of invasion, was due to the growth and multiplication within the body of the poison of small-pox implanted at the time of receiving the infection, they further believed that the period of remission following this fever corresponded to the precipitation, as it were, out of the circulation, at certain points on the cutaneous and mucous surfaces, of the developed poison, and that the second period of pyrexia, the Fever of Maturation, was due to the reabsorption of specific toxins into the system from the pocks, in which this toxin had been developed in the course of the maturation of the pocks.

The newer view is to the effect that the secondary fever is, as Ricketts and Byles put it (edition of 1908) "Purely a suppurative fever, caused by the absorption of septic products from the pustules, and proportional to the amount of that absorption." Similarly, Stokes, writing in John Hopkin's Hospital Bulletin of August 1903, and arguing from a study of five fatal and six non-fatal cases, declares that "the serious and fatal lesions of small-pox are caused by the secondary infection from the skin and respiratory tract, and the infectious agent is usually the *Streptococcus Pyogenes*. This organism is so distributed throughout the lesions as to explain most of the visceral changes, such as thrombosis, local necrosis, and the various pulmonary changes. The Streptococcic Septicæmia is the most striking feature of fatal small-pox, and if it were possible to overcome this condition by a special serum, the mortality from the disease would be greatly reduced." It has even been urged that, cocci having been found post-mortem in the internal hæmorrhages of hæmorrhagic small-pox, that this may be taken as amounting to proof that the true virus of small pox is a Streptococcus.

On the other hand, Biernacki, in Bam's Text-book of Medicine (1904), says "In the vesicular stage, few, if any, secondary organisms are found in the pocks, but the pustules contain among others the staphylococcus pyogenes and streptococci *** The pustulation of small-pox seems to be independent of secondary infection." The italics in the above are mine.

Goodall and Washbourne (1908) quote Councilman as stating that he "found bacteria in the sections of vesicles or pustules in only six of fifty-four cases examined by him; they were cocci arranged in chains or pairs." They say also that usually streptococci can be obtained by making cultures of the contents of the pus-

tules. Later on they go on to say that the pyogenic cocci found in the pustular stage are due to a secondary or mixed infection, and are probably responsible for the fever of suppuration." The italics again are mine. Thus, again, on this point, as on the first, although the general trend of a great deal of more recent argument would seem to be, if anything, inclined to the conclusion that the secondary fever of small-pox is perhaps a streptococcic fever, there is nevertheless some decided difference of opinion, and one is again more or less driven to seek one's own conclusions.

Now, if this so-called "secondary fever" of small-pox be truly a "secondary" fever, that is to say, a fever due not to the specific virus of small pox, but definitely to a streptococcus or to a closely allied pathogenic organism distinct from the small-pox virus, or if it be, as Stokes declares it to be from his study of eleven cases, definitely due to a *Streptococcus Pyogenes*, then certain questions suggest themselves, and these are as follows.

If it be a streptococcic fever, why should the range of infection of pustules be so limited that Councilman should record that he found bacteria in only six out of fifty-four cases? If it be a *Streptococcus Pyogenes*, its effects seem to be remarkably limited in small-pox. For if in an ordinary case half a dozen points of inoculation with this organism are quite enough to set up grave disturbances and even to endanger life, what is it that we may reasonably expect in small-pox? Welch and Schamberg made an approximate count of the number of pocks in a semi-confluent case under their care. The number was 26,701, and was under-rather than over-estimated. They calculated the total amount of pus in the pustules at about five quarts. They state that in big men with a profuse confluent eruption the number of pocks must be about 40,000, and on this, I suppose, the amount of pus may be taken as about sixteen pints. Surely, these data point to prodigious potentialities for systemic infection, and to possibilities which go so often unfulfilled that one naturally doubts very much the value of the hypothesis that the secondary fever of variola is a Streptococcæmia. Supposing even that all the pocks are not infected, and taking Councilman's figures—six out of fifty-four, as indicating that there is some ground for assuming that only some ten per cent of the pock are infected, what difference, I ask, have we a right to expect between cases inoculated with *Streptococcus Pyogenes* in 4,000 points developing about thirty ounces of pus, and those inoculated similarly in 2,600 points, developing about twenty ounces of pus, in which the inoculated organisms can multiply? Surely, there can be but little difference between the clinical possibilities of these two groups of cases. And if it be truly *Streptococcus Pyogenes*, I imagine that the possibilities would vary but little whether a patient were inoculated in 4,000 points or in 400

points Yet, these figures are those which apply to and which differentiate from each other, according to the relative numbers of pock developed in them, the three main clinical divisions of variola, *viz*, confluent, semi-confluent, and discrete, and we know only too well how widely different are the clinical characters of the secondary fever in the three groups. Why, again, is it that in a protected case suffering from an affection that is practically nearly universal, and almost confluent everywhere on the trunk (Figs 1 and 2), one not infrequently finds practically no secondary fever, whereas a case with a similar rash in an unprotected subject would give an abundant secondary fever and would prove not by any means a matter for congratulation, nor would it offer grounds for a prognosis such as may amply be justified in a case protected by vaccination. What is sauce for the goose should be sauce for the gander, and if it be, as alleged by Ricketts and Byles, "purely a suppurative fever, caused by the absorption of septic products from the pustules, and *proportional to the amount of that absorption*" (the italics are mine), then surely in protected cases with a very extensive rash, such as that shewn in figures 1 and 2, we ought to have an abundant secondary fever just as in unprotected cases. Why, again, is it that it is in the eruptions with a small-pock that we have the worst cases, with but little remission between the toxæmic fever of invasion and an exhausting secondary fever, with delirium and the general signs of a comparatively profound systemic infection, whereas in cases with large formed pocks—which are almost small bullæ rather than pocks—one gets but a comparatively slight systemic infection and but little secondary fever? And yet, again, if boils are to be taken as any evidence of streptococcic infection, why is it that whereas sufficient attention to the topical treatment of the eruption on the skin will result in the practical banishing of boils, it will make but little impression on the incidence of the secondary fever. Once more, why, if it be a true septic infection, should we not experience from time to time those manifestations of virulent septic action so prone to occur in aggregations of sick suffering from truly septic conditions affecting surface lesions? Yet in the Campbell Hospital, with its accommodation so over-crowded that one could scarcely walk between the 170 odd occupied beds, one very seldom comes across anything of the kind except among those poor wretches who have been admitted to hospital with fly-blown abscesses scattered among an advanced eruption at about the tenth to the fifteenth day. One writes not from any experience of isolated cases, but from some six years of work in the Small-pox Wards here, during which period one has more than once had a run of several hundred cases pass through one's hands in the course of a few months. I will in no wise deny that a true

septic infection does every now and again occur in the course of variola, following on or manifesting itself in the course of the maturation of the pock, and that when it supervenes it prolongs and alters the course of the fever, adding definitely to the gravity of the prognosis, and definitely asserting itself by rigors in the course of a sustained high level of temperature, and by a continuing fever of a remittent type persisting at a period when one would expect the secondary fever to die down, and by other familiar symptoms. Nor will I deny that in cases in which a septic element is superadded the mortality is very high, but that is a very different thing from declaring that all the secondary fever of small-pox is a purely septic fever and that the Streptococcic Septicæmia is the most striking feature of fatal small-pox. To these latter propositions I regret I can offer no support, for I am constrained to believe that the maturation and pustulation of small-pox is independent of secondary septic infection, and so too is the true "secondary fever," and that both these are manifestations of the specific action of the specific virus of small-pox. Septicæmia, with all modifications in its manifestations due to modifications in its virulence is always septicæmia, and the general experience of the profession regarding septicæmia apart from small-pox, certainly will not support the hypothesis that the systemic effects of a septicæmic infection may in general terms be measured by the number of points open to septic infection and between case and case, work out proportional to the amount of absorption from those points. In case after case, with their thousands of infected pocks, and pints of infected pus, the secondary fever lasts altogether only about a week or ten days at the outside, and it is only for the first few of these days that it is really severe. Very often, especially in protected cases, it subsides long before the pocks are anything like dry. In protected cases the crusts often dry with remarkable rapidity, and the secondary fever seems to run an aborted course, out of all proportion to what one gets in unprotected cases with about the same extent of efflorescent eruption. I am aware that I am with the minority in my adherence to these views. But I am not altogether alone.

L. Pfeiffer regards the secondary fever of variola vera, at its onset at least, as due to the specific variolous infection. He is supported by the views of Van der Looff that the specific parasite (*Cytorrhycles Variolæ*) is said to circulate again in the blood at the beginning of the renewed febrile stage as the young form, proliferated from the skin exanthem. Another ground advanced by Pfeiffer in support of the contention that the secondary fever is, at its beginning at least, due to a specific variolous infection, is that according to him the secondary fever begins actually, while the

pocks are still in the vesicular stage, and before suppuration has actually commenced Immermann of Basel declares that this is a statement in direct opposition to his own experience and that of many other writers. He insists on it that the truth is that the secondary fever appears only when the pocks on the head and face become markedly pustular. Councilman also opposes Pfeiffer and holds that the primary fever denotes "not blood infection but immunity." He seems to declare that during the primary fever the "organisms in the blood are destroyed and the toxin combined with them is set free." "Those organisms responsible for the skin eruption have been brought to the skin before." Surely, this argument is a little forced. It is true that as far as experimental evidence goes (Vander Loeff) the parasite which is regularly found in the blood during the initial fever disappears during the decline of that fever. But it is a long step to assume that because it has disappeared it is dead. On the contrary, coincident with its disappearance from the blood, we find it making its presence in the skin progressively evident, and it is at this stage in the disease, from the earliest beginnings of the papular stage to the first beginnings of vesiculation that the parasite completes its ultimate sexual stages leading to the formation and liberation of its spores. Why should the reabsorption of these bodies not lead to a secondary exacerbation of fever?

I do not think that it is quite accurate to say that the secondary fever appears "only when the pocks on the head and face become markedly pustular." In my own experience the primary fever is very often scarcely separated from the secondary by anything more than just a slight remission, a mere dip in the curve, and although it is customary to speak of the two separately, I do not quite see the reason for it. Councilman urges that the secondary fever "curve is in no way specific." But if you take the primary and secondary curves together in relation to the events of the first fifteen days of the disease, the curve is then very much more approaching a specific type. This curve varies, I submit, with the standard of Specific Toxæmia and it is only in a limited number of cases that it is modified by a superadded true streptococæmia.

I would next suggest for your consideration, certain details in treatment of small-pox.

An eminent authority has said, that a mild case of small-pox will recover and a bad one will die, whatever the treatment. There is nevertheless much that can be done for both the mild and the bad cases.

Firstly, as to the treatment of the eruption. This must be such as to secure the following: (1) to soothe the irritation, (2) to check fœtor, (3) to check local infection and thus prevent or minimise the subsequent formation of boils, (4) to check the tendency to pitting. In this matter I am glad to be able to tell you that we

have been very successful. I began in 1906-07 by using Lewentane's preparation (Starch 30 parts, salicylic acid 3 parts, glycerine 70 parts) applied freely to the whole body every three or four hours, but applied direct and without the mask recommended by Lewentane. The results were most encouraging, but the cost of glycerine made the preparation rather too expensive, and besides that a few patients here and there complained of a burning on applying the glycerine. Various other preparations have since been tried, with the result that we now use either Lewentane's original preparation as given above, or the following:

Acid Salicylic	2 drms
Thymol	.. 2 drms
Menthol	4 drms
Eucalyptol	2 drms
Oil Arachis Hypogæa	.. 1 lb

This preparation mixes very well, is very soothing and is I, think, just as efficacious as Lewentane's and is cheaper. In either case, whichever of these is used, it should be applied from the very first, from the first beginnings, if possible, of the papular stage, but I have found repeatedly the greatest benefit from its use, even when the application has been commenced when maturation has been well established. The use of these preparations has practically banished fœtor, it has almost abolished boils, and has given the most gratifying results in the almost universal and complete prevention of pitting. It appears also that this preparation is capable of checking, to some extent, the spread of infection. In 1907, commenting on my paper, read that year before this Section, and arguing on the question of the aerial convection of small-pox from the Campbell Hospital, Dr Neild Cook stated that one of the objections to my contention that aerial convection from our wards was not to be considered as a factor in the incidence of small-pox in our neighbourhood, lay in this that I "was in the habit of plastering the bodies of my patients with sticky unguents as a first line of defence against the excursions of wandering microbes." I then agreed with Dr Cook. Now, in the reports of certain of the Small-pox Hospitals near Gateshead it is stated that the incidence of small-pox in the vicinity of the one of them that used oily preparations applied to the skin was appreciably less than in the case of the sister hospital that did not use such preparations. Lewentane, again, definitely states that by the use of his glycerine "the danger to those around the patient is greatly lessened" and that unvaccinated children exposed to the contagion remained unaffected. My own experience quite confirms the above and of our cases since 1906 about 75 per cent have been treated with our own oil preparation and the rest with Lewentane's glycerine. In the Small-pox Wards we employ from 20 to 70 menial servants, none of whom will on any account live on the premises, and indeed

there is no accommodation provided for them. Any attempt at confining them to the premises would end in their absolutely refusing service. These people, with their wives and children, live in the same lines with the other servants working in the Campbell Hospital. The two sets of servants together form, during the height of an epidemic, a community of about 400 people including wives and children, and as a community they are no better protected than the general population of Calcutta of the same class, just the class that furnishes the majority of our patients. Nevertheless, in the period from January 1905 to date, we have had but two cases among our attendants (one of which was in a cook newly joined and who did not live in our lines) and who therefore might have taken his infection elsewhere and only one among the children living in the lines. A few months ago a paper appeared in the *British Medical Journal* of 31st October 1908 by Dr Robert Milne on the home treatment of Scarlet Fever, in which he shews that the free application of eucalyptus oil to the skin practically abolishes the danger of infection. Our experience in the Campbell Hospital would suggest that the use of the only preparation that we employ and of Lewentane's Glycerine brings the home treatment of small-pox almost within feasible limits and at any rate very much diminishes the risk of the spread of infection from Small-pox Hospitals to the dwellers in their immediate neighbourhood.

In the treatment of the skin condition I like to begin warm or tepid sponging as soon as the patient can stand it, and to pass on as soon as possible to warm baths. Both for the sponging and for the baths the addition of salicylic acid to the water (about a grain to the ounce), for the first week at least, helps to clean up the skin and is very refreshing, and later on a little soda added to the bath helps to get off the scabs when they begin to dry. In the final stage, a lotion of calamin with oxide of zinc has given the best results in my experience.

In the matter of the eye complications of small-pox, prevention is better than cure, and we have reduced eye troubles to a minimum by adopting as a routine treatment the application to every eye in the hospital, at least thrice daily, of eye drops consisting of a solution of medicinal Methylene Blue of a strength of one grain to the ounce of distilled water. Methylene Blue was first suggested to me by Lieutenant-Colonel Maynard as a remedy for various conjunctival troubles in variola, and I found it so good that I have extended its use as above indicated.

Next, I would refer to what our experience in our wards has led us to regard as one of the most important danger signals of small-pox. In severe cases, one repeatedly finds that about the eighth or ninth day there is a tendency for the rate of the respiration to rise out of all proportion to the pulse rate, and that often

with a rapidity that is very striking. A patient will perhaps have gone on to the 8th day of a severe attack and for the last two days or so may have had a pulse of about 100 to 110 and a respiration of about 20 to 24. It may thereafter be found that his respiration will increase rapidly, till in the course of three or four hours it will have risen to 30 or 36 and that it will have become more definitely abdominal, the pulse meanwhile remaining at about 112 to 116, or possibly as much as 120. In another hour or two the respiration will be found to have risen to 38 or 40 or more, the pulse having scarcely risen further. Examination of the lungs in these cases gives nothing more than a slightly raised pitch in the percussion note, with puerile or slightly harsh breathing. There are practically no accompaniments except a few dry rales, and nothing to indicate either the cedema of the lung that some authors dwell on, or the onset of a broncho-pneumonia. In fatal cases the respiration runs up to 40, 50, 60, and I have counted it as high as 73 in the minute. Once the respiration has reached a rate of about 30, there is every reason for the most careful watching, and should it rise over 35, I make it a rule to warn the friends that the case has taken on a definitely serious aspect, for it is rarely that cases recover that shew this rapid rise of respiration at this period of their disease, under any ordinary treatment. For a long time we tried everything we could think of in the way of stimulant treatment, Digitalis, Strophanthus, Styrchnia, Alcohol, and so on, but once the respiration rose to 36 to 40, with that fatal lift of the abdominal muscles in breathing, nothing seemed of any avail. Fortunately, it occurred to me to try the effect of Oxygen, and to our great relief it proved reliable, and I am convinced that it has saved numerous cases that we should otherwise certainly have lost. But to be of any avail, it must be given continuously,—not for half an hour or so, but for not less than two or three or more hours at a time, and it must be repeated as often as necessary. Over and over again, have we had cases such as those above described, with a respiration of 40 and more, and obviously rapidly getting worse, improve rapidly, and after three hours of Oxygen, shew a pulse of about 100, and a respiration of about 24. And within a few hours of the stopping of Oxygen the breathing has again gone up to 40 or 50, and a second and perhaps a third or even a fourth administration of Oxygen has been necessary, and then there has been no more trouble, and the patient has been saved. I am inclined to think that this dyspnoea is entirely a specific toxic phenomenon, for not only is lobal pneumonia rare in small-pox (Councilman records only two out of 54 autopsies), not only is the rate of progress of this condition too rapid to be accounted for by the patchy broncho-pneumonic catarrhal

affection that is the commonest lung lesion, but this same type of hurried respiration is extremely common in the severest types of universally confluent affection, in the type known as *Hæmorrhagica Pustulosa*, and especially in the most virulent cases of true hæmorrhagic small-pox. On the other hand (*vide* cases of B F and W E) there are plenty of cases that run on for days with a pulse of 130 without a break and with respiration quiet all the time at a rate of about 20 to 24. In W E's case I counted the pulse at 157 with the respiration at 24, and it has been a matter of repeated experience with us that a pulse rate may run high with comparatively low rate of respiration, and we have come to regard it as a definite fact that as long as the respiration keeps down, even though the pulse run high, the prognosis need not be unfavourable. The use of the respiration rate we have definitely come to regard absolutely as a definite danger signal. These details of the relation of the pulse rate and of the temperature rate to the prognosis, and of the treatment with Oxygen as above described, are not, as far as I know, referred to in any work, nor have they been so far described, and the same may be claimed for the oil treatment which I have introduced into our wards.

A few minor points and I have done

1 We are told that "confluence does not occur upon the trunk," and that the axilla is usually exempt from all eruption. I cannot agree with either of these statements. In my experience a fully confluent rash almost universal, involving the whole body, practically covering the back in one continuous sheet of eruption, and equally extensive over the front of the chest, is by no means uncommon especially in unprotected cases, and I have week after week

pointed out to my staff axillæ clammed with confluent eruption.

2 Small-pox is usually "centrifugal" in its distribution on the body, and Fig 3 shows this well, but I have had a good many cases in which the face has escaped and the axillæ, the trunk and the proximal segments of the limbs have been chiefly affected.

3 Clustering of the eruption is largely a result of irritation, and often occurs at the seat of old injuries. At the present moment I have a case of discrete eruption with a cluster on the site of an injury received in childhood some 40 years ago. There is, however, a pathological clustering giving us the type known as "Corymbose" eruption. These cases are generally fatal, even though there be only one or two well-marked clusters in an otherwise discrete eruption. One of these admitted last February had about 50 clusters each about from 4 to 6 square inches in area, scattered among an almost universal discrete eruption, and another had some half a dozen patches as big as one's two palms together, scattered about on the back one over crest of each ilium, on the inside of the thighs, and on the fore arms. This latter patient had a prodromal rash in the form of an urticaria which was, however, limited only to the areas in which the focal rash subsequently appeared. The intervals between the clusters were occupied by a discrete eruption which on the back approached to a semi-confluent type. I am aware that I have not nearly exhausted the many points of interest in connection with this disease, but to attempt to do so would make too long a paper.

In conclusion, I must thank those of my staff who have so loyally helped me in working out in the wards the details on which the argument in this communication has been based.

Table shewing incidence of Small-pox cases in General wards of Campbell Hospital from January 1905 to May 1909 inclusive, ward by ward (In col 5, read $\frac{5F}{1R}$ as 5th day of fever and 1st day of rash, and so on.)

Number	Date of admission to General ward	Date of transfer to Small pox ward	Number of days in General ward	Period of illness on transfer to Small pox ward	Date of transfer of last case from ward to Small pox ward	Number of days since transfer of last case from the ward	Ultimate character of eruption	Ultimate results	Whether possibly or probably infected from within the Hospital	Average daily strength of ward during period indicated by bracket
1	2	3	4	5	6	7	8	9	10	11
1st MEDICAL WARD										
1	15 1 06	17 1 06	3	$\frac{5F}{1R}$			Confluent	Died 13 2 06	No	46 56
2	31 1 06	3 2 06	4	$\frac{4F}{2R}$	17 1 06	18	Do	Cured	No	
3	19 2 06	19 2 06	1	$\frac{5F}{4R}$	3 2 06	17	Modified	Do	No	28 75
4	19 2 06	19 2 06	1	$\frac{5F}{4R}$	3 2 06	17	Discrete	Do	No	
5	25 2 06	26 2 06	2	$\frac{6F}{1R}$	19 2 06	8	Confluent	Do	No	

Table showing incidence of Small-pox cases in General wards of Campbell Hospital from January 1905 to May 1909 inclusive, ward by ward—(contd)

Number	Date of admission to General ward	Date of transfer to Small pox ward	Number of days in General ward	Period of illness only transfer to Small pox ward	Date of transfer of last case from ward to Small pox ward	Number of days since transfer of last case from the ward	Ultimate character of eruption	Ultimate result	Whether possibly or probably infected from within the Hospital	Average daily strength of ward during period indicated by bracket
1	2	3	4	5	6	7	8	9	10	11

1ST MEDICAL WARD—(continued)

6	11 3 06	12 3 06	2	$\frac{6F}{2R}$	26 2 06	15	Semi Confl	Died 19 3 06	No	31 12
7	18 3 06	20 3 06	3	$\frac{4F}{1R}$	12 3 06	9	Confluent	Died 14 4 06	No	
8	21 3 06	23 3 06	3	$\frac{4F}{1R}$	20 3 06	4	Modified	Cured	No	
9	6 4 03	7 4 06	2	$\frac{4F}{2R}$	23 3 06	10	Confluent	Do	No	27 33
10	23 4 06	26 4 06	4	$\frac{4F}{2R}$	7 4 06	20	Semi Confl	Do	No	
11	19 2 07	21 2 07	3	$\frac{4F}{2R}$	26 4 06	302	Confluent	Died 1 3 07	No	30 89
12	6 3 07	7 3 07	2	$\frac{5F}{2R}$	21 2 07	15	Do	Died 17 3 07	No	31 93
13	3 4 07	7 4 07	5	$\frac{4F}{2R}$	7 3 07	32	Do	Cured	No	32 16
14	26 5 07	27 5 07	2	$\frac{4F}{1R}$	7 4 07	51	Semi Confl	Do	No	28 64
15	13 4 08	16 4 08	4	$\frac{5F}{2R}$	27 5 07	323	Modified	Do	No	30 33
16	21 4 08	22 4 08	2	$\frac{4F}{1R}$	16 4 08	7	Semi Confl	Absconded	No	
17	24 12 08	27 12 08	4	$\frac{4F}{1R}$	22 4 08	250	Confluent	Cured	No	40 51
18	14 2 09	16 2 09	3	$\frac{8F}{1R}$	27 12 08	52	Discrete	Do	No	58 39
19	20 2 09	22 2 09	3	$\frac{5F}{1R}$	16 2 09	7	Confluent	Do	No	
20	22 2 09	24 2 09	3	$\frac{6F}{2R}$	22 2 09	3	Do	Do	No	
21	27 2 09	1 3 09	3	$\frac{31}{1R}$	24 2 09	6	Hæmorrhagic	Died 5 3 09	No	56 87
22	13 1 09	1 3 09	48	$\frac{4F}{2R}$	24 2 09	6	Do	Died 3 3 09	Yes, possibly from No 19	
23	12 3 09	13 3 09	2	$\frac{3F}{1R}$	1 3 09	13	Discrete	Cured	No	
24	12 3 09	15 3 09	4	$\frac{4F}{1R}$	13 3 09	3	Hæmorrhagic	Died	No	53 32
25	21 3 09	24 3 09	4	$\frac{7F}{5R}$	15 3 09	10	Modified	Cured	No	

2ND MEDICAL WARD

1	13 4 05	16 4 05	4	$\frac{4F}{2R}$	Months ago		Confluent	Cured	No	47 63
2	23 12 05	24 12 05	2	$\frac{3F}{1R}$	16 4 05	2 3	Do	Died 2 1 06	No	56 32
3	23 12 05	29 12 05	7	$\frac{2F}{1R}$	24 12 05	6	Do	Cured	No	
4	30 1 06	30 1 06	1	$\frac{4F}{1R}$	29 12 05	33	Do	Do	No	43 19
5	17 3 06	18 3 06	2	$\frac{3F}{1R}$	30 1 06	48	Do	Do	No	30 12
6	7 3 07	9 3 07	3	$\frac{8F}{1R}$	18 3 06	356	Do	Do	No	28 38
7	1 6 07	3 6 07	3	$\frac{6F}{1R}$	9 3 07	87	Do	Died 11 6 07	No	36 26
8	21 6 07	22 6 07	2	$\frac{4F}{2R}$	3 6 07	20	Semi Confl	Cured	No	
9	15 12 08	18 12 08	4	$\frac{7F}{2R}$	22 6 07	545	Discrete	Do	No	38 61
10	12 1 09	12 1 09	1	$\frac{2F}{1R}$	18 2 08	26	Hæmorrhagic	Died 12 1 09	No	30 35
11	22 1 09	23 1 09	2	$\frac{6F}{3R}$	12 1 09	12	Semi Confl	Cured	No	
12	1 2 09	3 2 09	3	$\frac{4F}{2R}$	23 1 09	12	Hæmorrhagic	Died 4 2 09	No	53 32
13	13 2 09	16 2 09	4	$\frac{6F}{4R}$	3 2 09	14	Do	Died 16 2 09	No	

Table showing incidence of Small-pox cases in General wards of Campbell Hospital from January 1905 to May 1909 inclusive, ward by ward—(contd.)

Number	Date of admission to General ward	Date of transfer to Small pox ward	Number of days in General ward	Period of illness on transfer to Small pox ward	Date of transfer of last case from ward to Small pox ward	Number of days since transfer of last case from the ward	Ultimate character of eruption	Ultimate result	Whether possibly or probably infected from within the Hospital	Average daily strength of ward during period indicated by bracket
1	2	3	4	5	6	7	8	9	10	11

2ND MEDICAL WARD—(continued)

14	15 2 09	19 2 09	5	$\frac{6F}{2R}$	3 2 09	4	Hæmorrhagic	Died 20 2 09	No	} 54 32
15	19 2 09	20 2 09	2	$\frac{4F}{2R}$	19 2 09	2	Semi Confl	Cured	No	
16	7 3 09	8 3 09	2	$\frac{31}{1R}$	20 2 09	17	Confluent	Died 18 3 09	No	} 47 64
17	23 3 09	24 3 09	2	$\frac{41}{2R}$	8 3 09	17	Semi Confl	Cured	No	

CHOLERA WARD

1	11 1 06	14 1 06	1	$\frac{6F}{3R}$			Semi Confl	Cured	No	} Yes, probably from Small pox ward which is close by
2	18 4 06	7 5 06	20	$\frac{31}{1R}$	14 1 06	114	Confluent	Do		
3	28 5 06	8 6 06	12	$\frac{41}{1R}$	7 5 06	32	Do	Died 12 6 06		
4	2 3 09	24 3 09	23	$\frac{51}{3R}$	19 3 09	778	Modified	Cured		} Yes, source of infection untraced as she was 300 yds from Small pox hospital

NORTH BLOCK (Surgical)

1	11 11 05	20 1 06	71	$\frac{4F}{2R}$		8 Months	Confluent	Died 21 1 06	} Yes, source of infection untraced, probably visitors in both blocks	115 64
2	12 7 08	26 12 08	14	$\frac{31}{1R}$		6 Months	Do	Cured		77 38
3	3 1 09	29 1 09	27	$\frac{4F}{2R}$	25 12 08	36	Modified	Do		42 12

FEMALE WARD

1	18 1 06	20 1 06	3	$\frac{51}{1R}$			Confluent	Died 24 1-06	No	} 114 70
2	31 3 06	1 4 06	2	$\frac{31}{1R}$	20 1 06	72	Hæmorrhagic	Died 1 4 06	No	
3	3 3 06	6 4 06	35	$\frac{61}{3R}$	1 4 06	6	Confluent	Cured	Yes, untraced	} 102 26
4	10 4 06	15 4 06	6	$\frac{4F}{1R}$	6 4 06	10	Do	Died 16 4 06	No	
5	26 4 06	28 4 06	3	$\frac{31}{1R}$	15 4 06	14	Do	Cured	No	} 103 32
6	9 5 06	11 5 06	2	$\frac{5F}{1R}$	28 4 06	13	Do	Do	No	
7	4 1 07	7 1 07	4	$\frac{41}{2R}$	10 5 06	243	Do	Died 11 1 07	No	99 74
8	5 2 07	7 2 07	3	$\frac{4F}{2R}$	7 1 07	32	Do	Cured	No	} 91 07
9	5-2 07	28 2 07	24	$\frac{4F}{1R}$	7 2 07	22	Do	Died 4 3 07	Yes, possibly No 8	
10	7 3 07	8 3 07	2	$\frac{31}{1R}$	28 2 07	9	Do	Cured	No	46 16
11	16 4 07	17 4 07	2	$\frac{4F}{2R}$	8 3 07	43	Do	Do	No	80 40
12	15 5 07	16 5 07	2	$\frac{31}{1R}$	17 4 07	30	Do	Do	No	} 77 32
13	26 5 07	29 5 07	4	$\frac{41}{4R}$	16 5 07	14	Modified	Do	No	
14	22 1 08	24 1 08	3	$\frac{9F}{1R}$	29 5 07	241	Confluent	Do	No	86 87
15	9 2 08	14 2 08	6	$\frac{61}{4R}$	24 1 08	22	Semi Confl	Died 8 3 08	No	} 121 93
16	9 2 08	14 2 08	6	$\frac{31}{1R}$	14 2 08	1	Modified	Died 2 3 08	Yes, Observation ward close to Small pox ward	
17	26 2 08	27 2 08	2	$\frac{31}{1R}$	14 2 08	14	Do	Cured	No	

Table showing incidence of Small-pox cases in General wards of Campbell Hospital from January 1905 to May 1909 inclusive, ward by ward—(contd)

Number	Date of admission to General ward	Date of transfer to Small pox ward	Number of days in General ward	Period of illness on transfer to Small pox ward	Date of transfer of last case from ward to Small pox ward	Number of days since transfer of last case from the ward	Ultimate character of eruption	Ultimate result	Whether possibly or probably infected from within the Hospital	Averaged strength of ward during period indicated by bracket
1	2	3	4	5	6	7	8	9	10	11

FEMALE WARD—(continued)

18	9 2 08	14 2 06	6	$\frac{3F}{1R}$	14 2 08	1	Modified	Cured	Yes	121 93
19	1 4 08	2 4 08	2	$\frac{5F}{3R}$	27 2 08	36	Semi Confl	Do	Observation ward close to Small pox ward	
20	12 4 08	12 4 08	1	$\frac{7F}{4R}$	2 4 08	11	Modified	Do	No	105 96

PLAGUE WARD

1	8 3-06	10 3 06	3	$\frac{5F}{1R}$			Modified	Cured	No
2	23 3 06	25 3 06	3	$\frac{3F}{1R}$	10 3 06	16	Confluent	Died, 29 3 06	No
3	31 3 06	2 4 06	3	$\frac{3F}{1R}$	25 3 06	9	Do	Cured	No
4	8 4 06	10 4 06	3	$\frac{4F}{1R}$	28-4 06	9	Do	Do	No
5	3 5 06	5 5 06	3	$\frac{7F}{1R}$	10 4 06	26	Hæmorrhagic	Died, 5 5 06	No
6	2 3 07	3 3 07	2	$\frac{4F}{2R}$	5 5 06	302	Confluent	Cured	No
7	4-4 07	8 4 07	5	$\frac{6F}{1R}$	3 3 07	37	Do	Died, 15 4 07	No
8	12 4 07	13 4 07	2	$\frac{5F}{3R}$	8 4 07	6	Do	Died, 19 4 07	No
9	15 4 07	16 4 07	2	$\frac{5F}{3R}$	13 4 07	4	Do	Cured	No
10	15 4 07	17 4 07	3	$\frac{5F}{2R}$	16 4 07	2	Do	Do	No
11	22-4 07	25-4 07	4	$\frac{5F}{1R}$	17 4 07	9	Do	Do	No

SOUTH BLOCK (Female)

1	10 1 09	12 1 09	2	$\frac{2/3 F}{1R}$			Hæmorrhagic	Died, 12 1 09	No
2	22-10 08	17 1 09	87	$\frac{4F}{1R}$	11 1 09	7	Do	Died, 19 1 09	Yes, source of infection not traced
3	20 1 09	23 1 09	4	$\frac{10F}{1R}$	17 1 09	7	Confluent	Died, 29 1 09	No
4	18 3 09	21 3 09	2	$\frac{5F}{3R}$	23 1 09	56	Modified	Cured	No

TEMPORARY BLOCK (Female)

1	18 1 09	3 2 09	17	$\frac{5F}{3R}$			Hæmorrhagic	Died, 3 2 09	Yes
2	2 2 09	5 2 09	3	$\frac{4F}{2R}$	3 2 09	2	Do	Died, 8 2 09	No
3	Years ago	24 2 09	Years	$\frac{12F}{7R}$	4 2 09	21	Modified	Died, 1 3 09	Yes Very aged
4	Do	28 2 09	Do	$\frac{10F}{6R}$	24 2 09	5	Do	Cured	Yes
5	4 3 09	5 3 09	2	$\frac{9F}{4R}$	28 2 09	6	Semi Confl	Do	No
6	27 1 09	9 3 09	42	$\frac{9F}{6R}$	5 3 09	5	Modified	Do	Yes
7	17 3 09	22 3 09	6	$\frac{6F}{2R}$	9 3 09	14	Do	Do	No

TEMPORARY BLOCK—(Male)

1	13 3-09	14 3-09	2	$\frac{7F}{1R}$			Semi Confl	Cured	No	54 16
2	16-3 09	17 3 09	2	$\frac{6F}{3R}$	14 3 09	4	Hæmorrhagic	Died 20 3 09	No	

CLINICAL NOTES ON SMALL-POX

By MAJOR J C S VAUGHAN, M.B., F.R.C.S.

Superintendent, Campbell Medical School, Sealdah

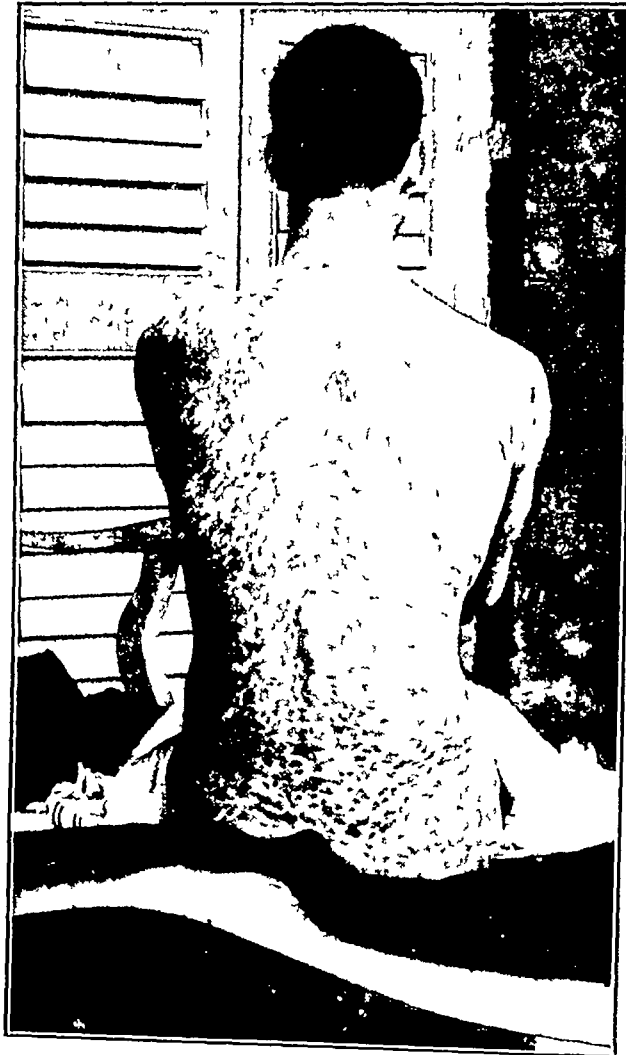


FIG 1

CLINICAL NOTES ON SMALL-POX.

By MAJOR J C S VAUGHAN, M.B., I.M.S.,

Superintendent Campbell Medical School, Sealdah

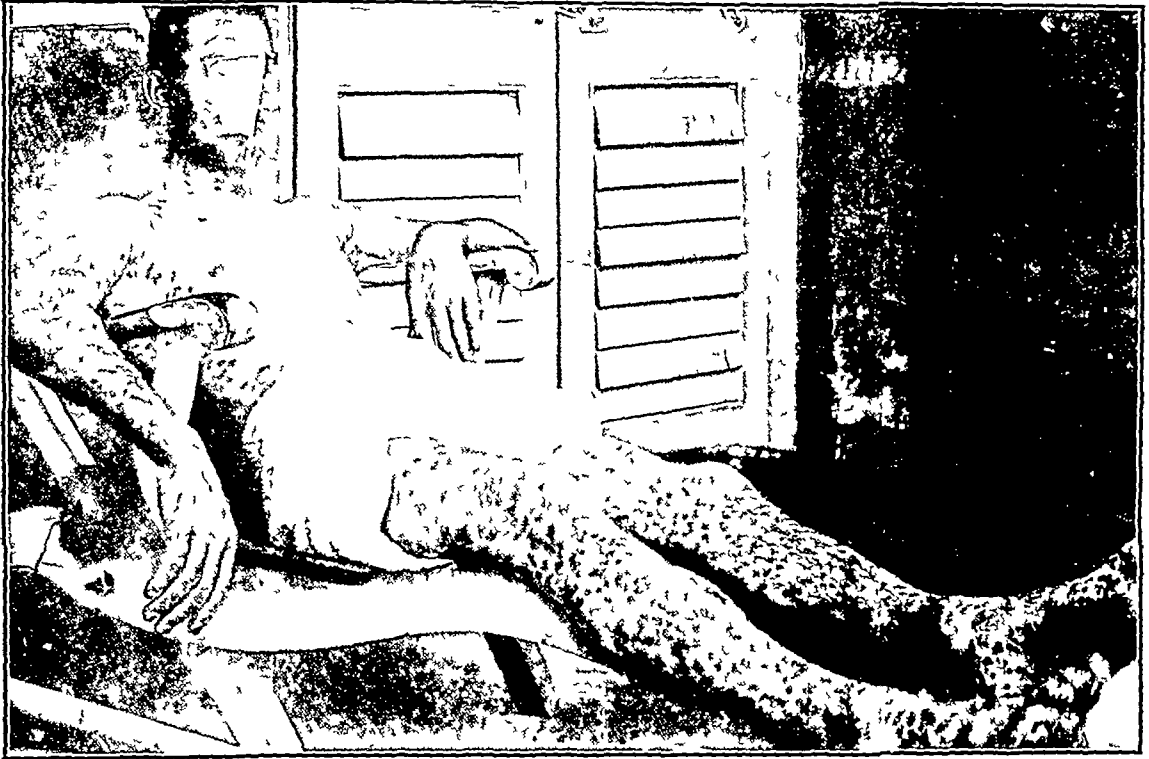


FIG 2



FIG 3

Superintendent, Campbell Medical School, Scaldah

CHART I — Protected

Baby A C, age 6 years Small pox—Confluent Vaccinated

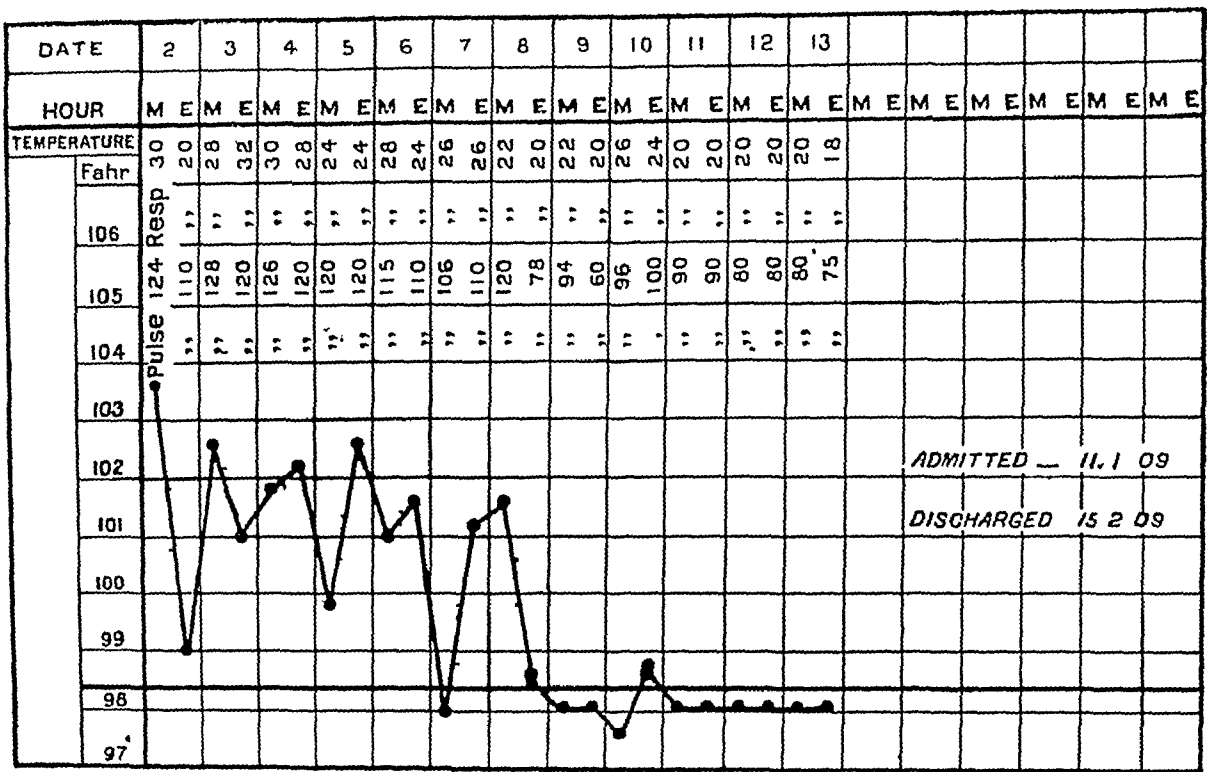
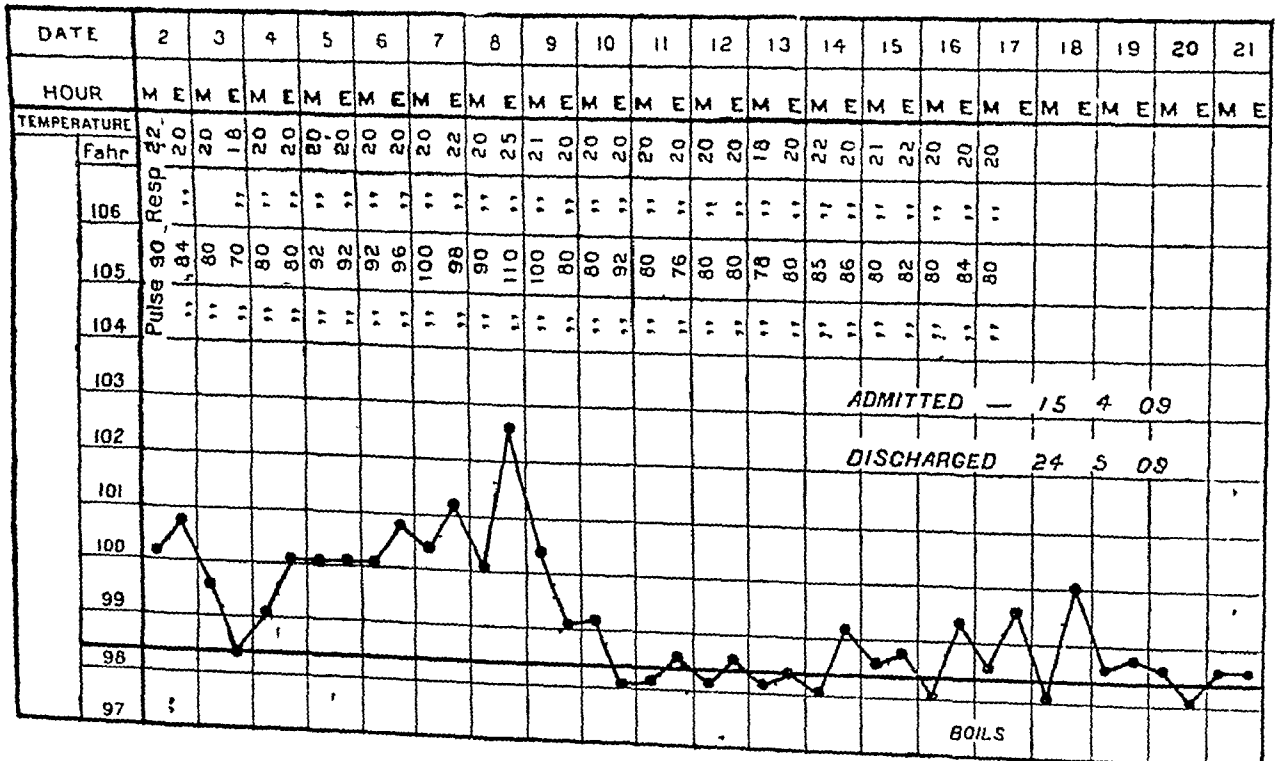


CHART II --Protected

J F B, age 27 years Small pox—Confluent Vaccinated Threo distinct scars visible



CLINICAL NOTES ON SMALL-POX

B1 MAJOR J C S VAUGHAN, MB, IMS,

Superintendent, Campbell Medical School, Sealdah

CHART III - Protected

Mr E W H , age 27 years Small pox —Semi confluent Vaccinated

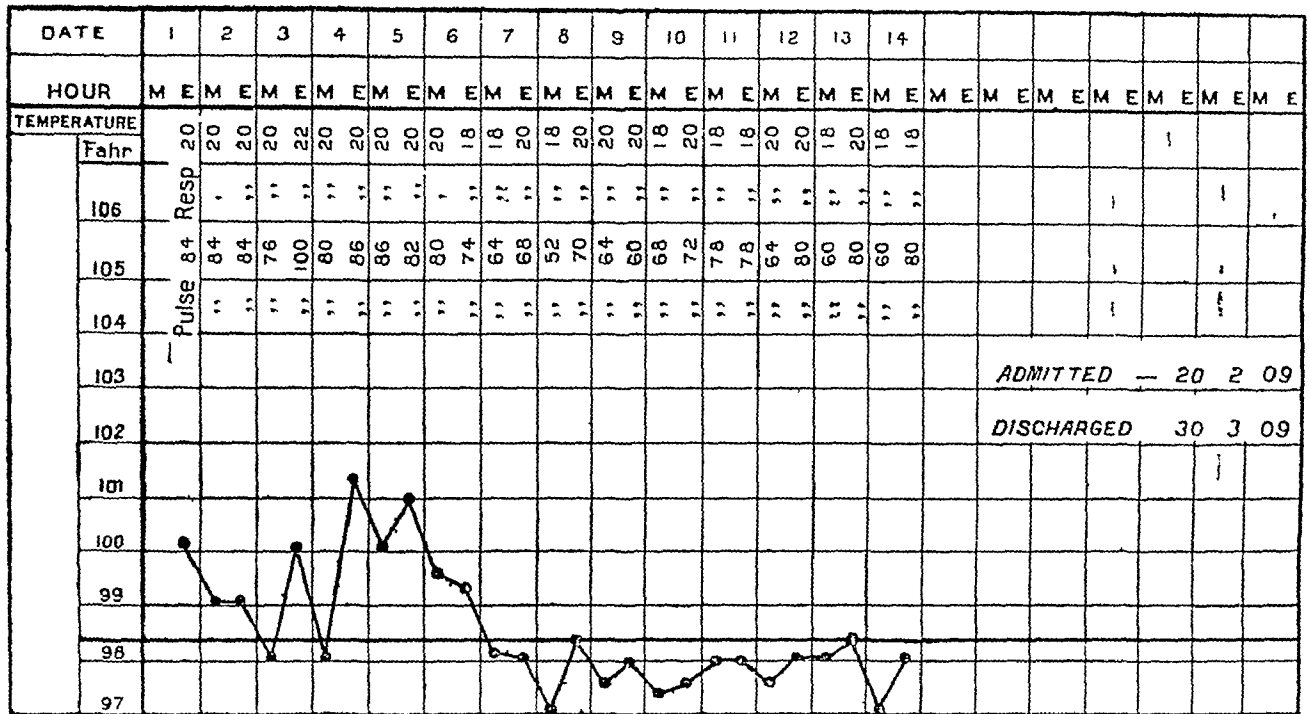
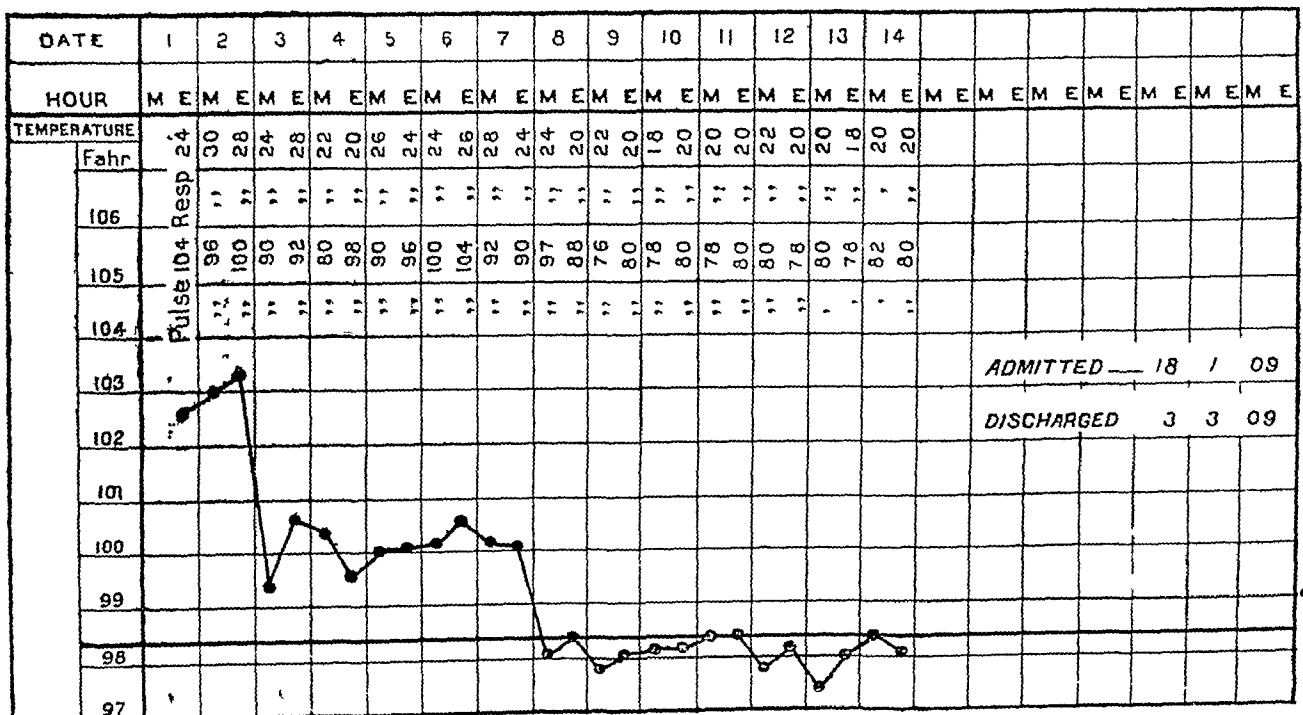


CHART IV —Protected

Mr. D. A., age 28 years Small pox—Confluent Vaccinated in childhood Two scars distinctly visible on left arm



CLINICAL NOTES ON SMALL-POX

By MAJOR J C S VAUGHAN, M.B., F.R.S.,

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CHART V—Protected

Mr G, age 29 years Small pox—Vaccinated in childhood Two scars distinctly visible on left arm

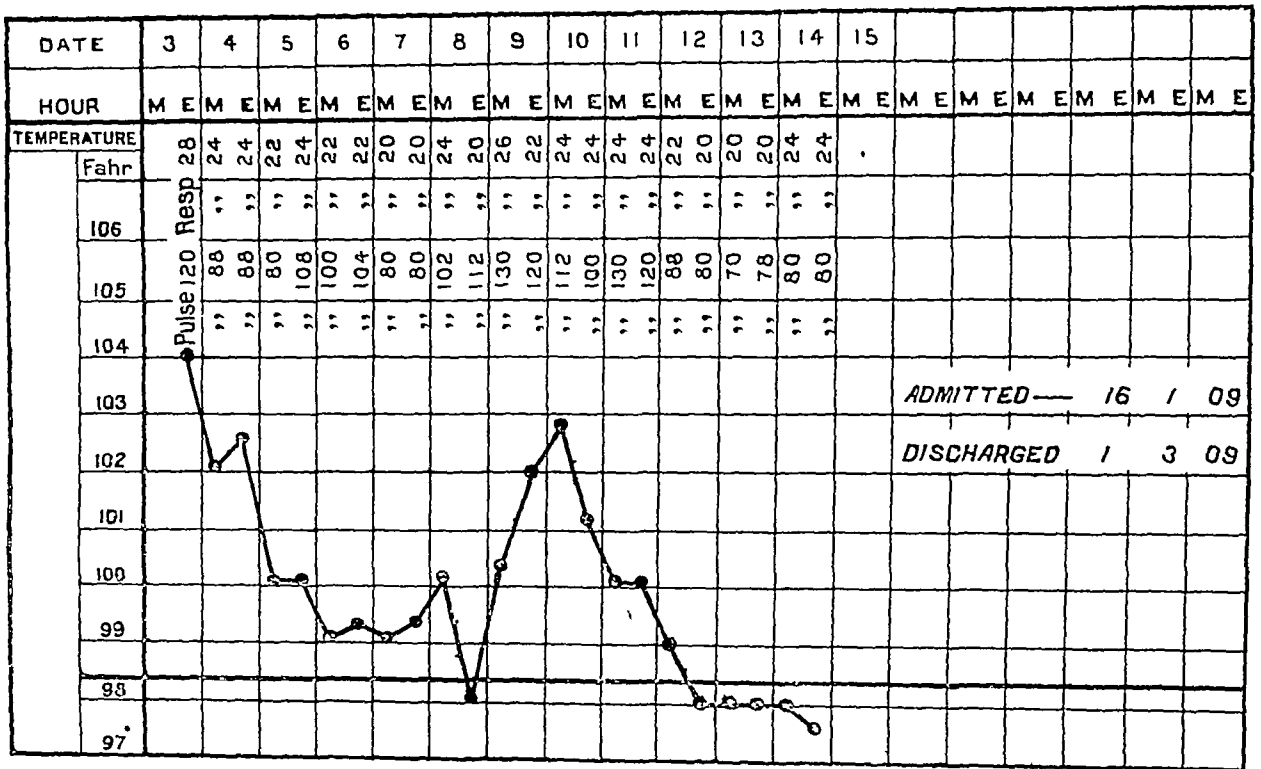
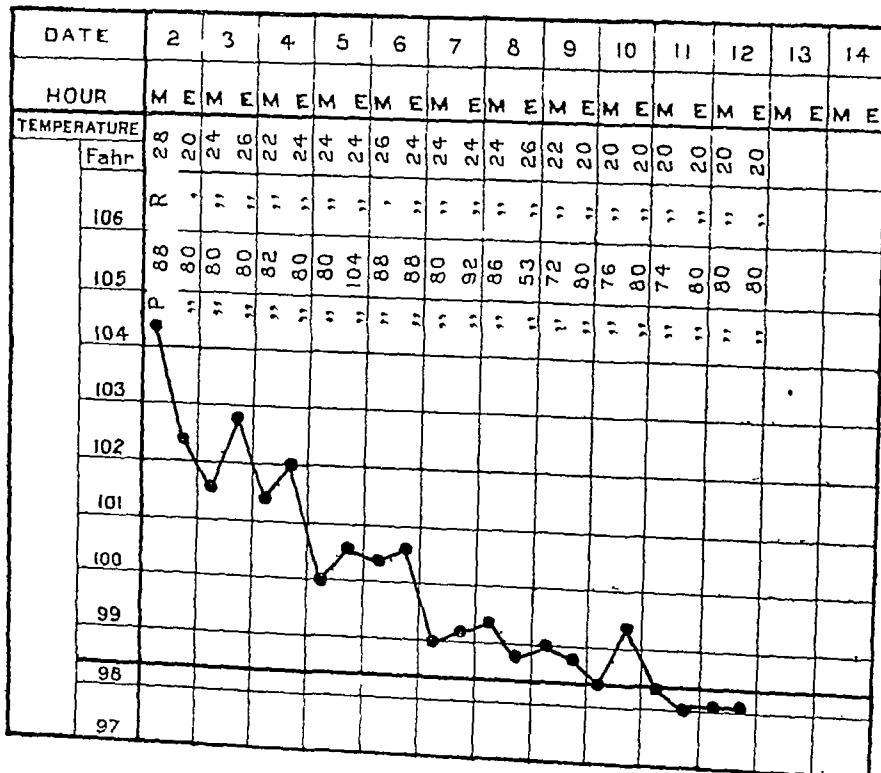


CHART VI—Protected

Mr R G M, age 43 years Small pox—Confluent Vaccinated in childhood Two scars visible on left arm



CLINICAL NOTES ON SMALL-POX

By MAJOR J C S VAUGHAN, M B, I M S,

Superintendent Campbell Medical School, Scaldah

CHART VII --Protected

L L, age 9 years Small pox—Vaccinated One good scar

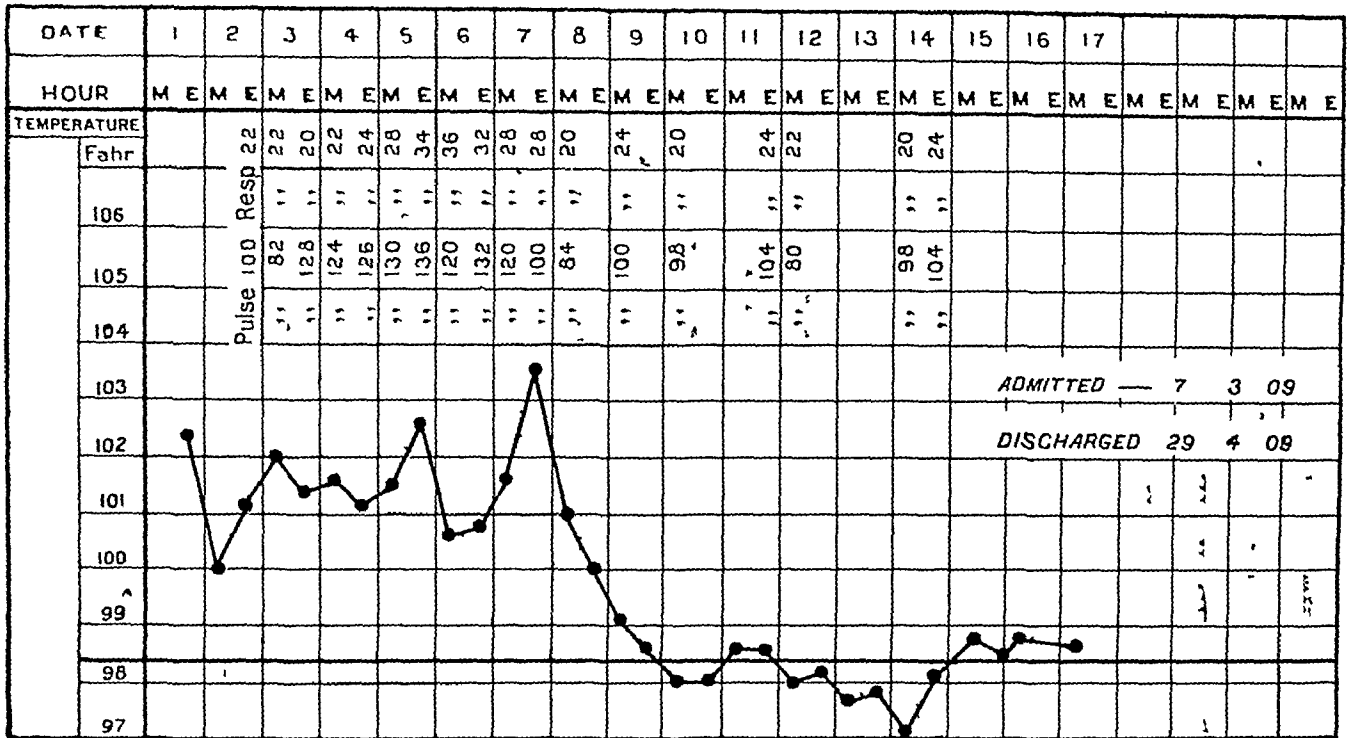
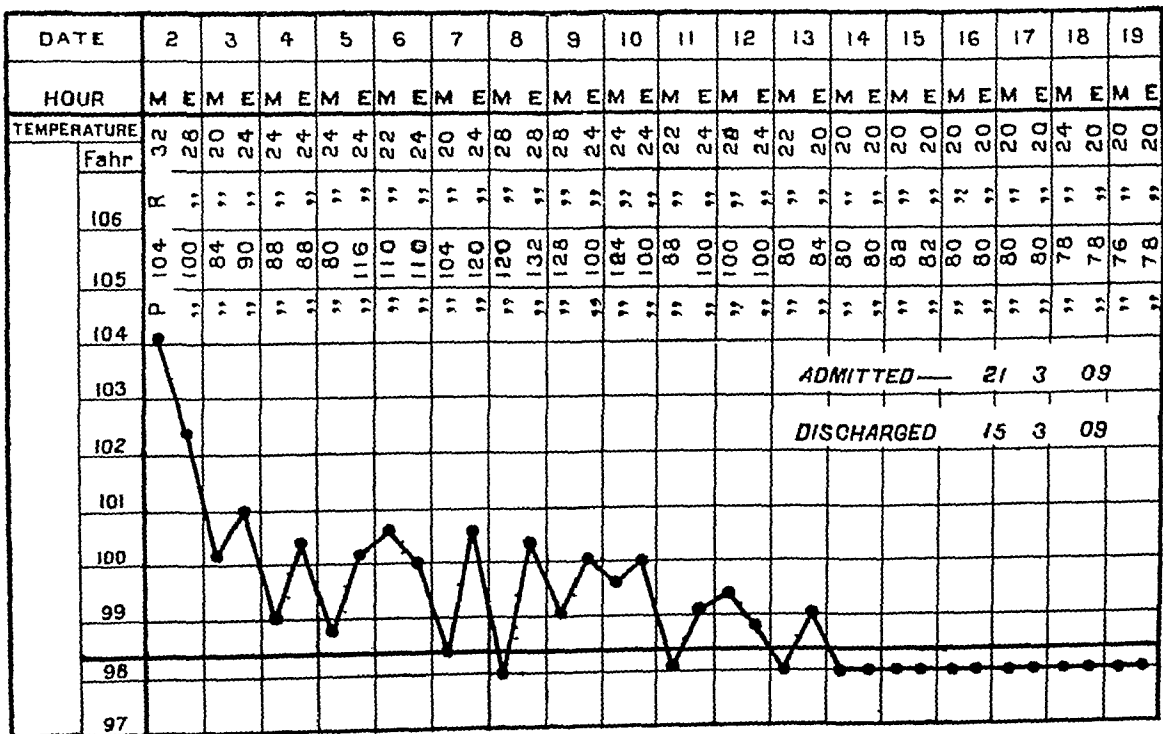


CHART VIII —Protected

W S, age 28 years Small pox—Confluent Vaccinated in infancy Two scars visible faint



CLINICAL NOTES ON SMALL-POX

BY MAJOR J C S VAUGHAN, M B, I M S,

Superintendent, Campbell Medical School, Sealda

CHART I - Unprotected

M1 F D, age 48 years Small pox—Vaccinated in infancy Mark not visible

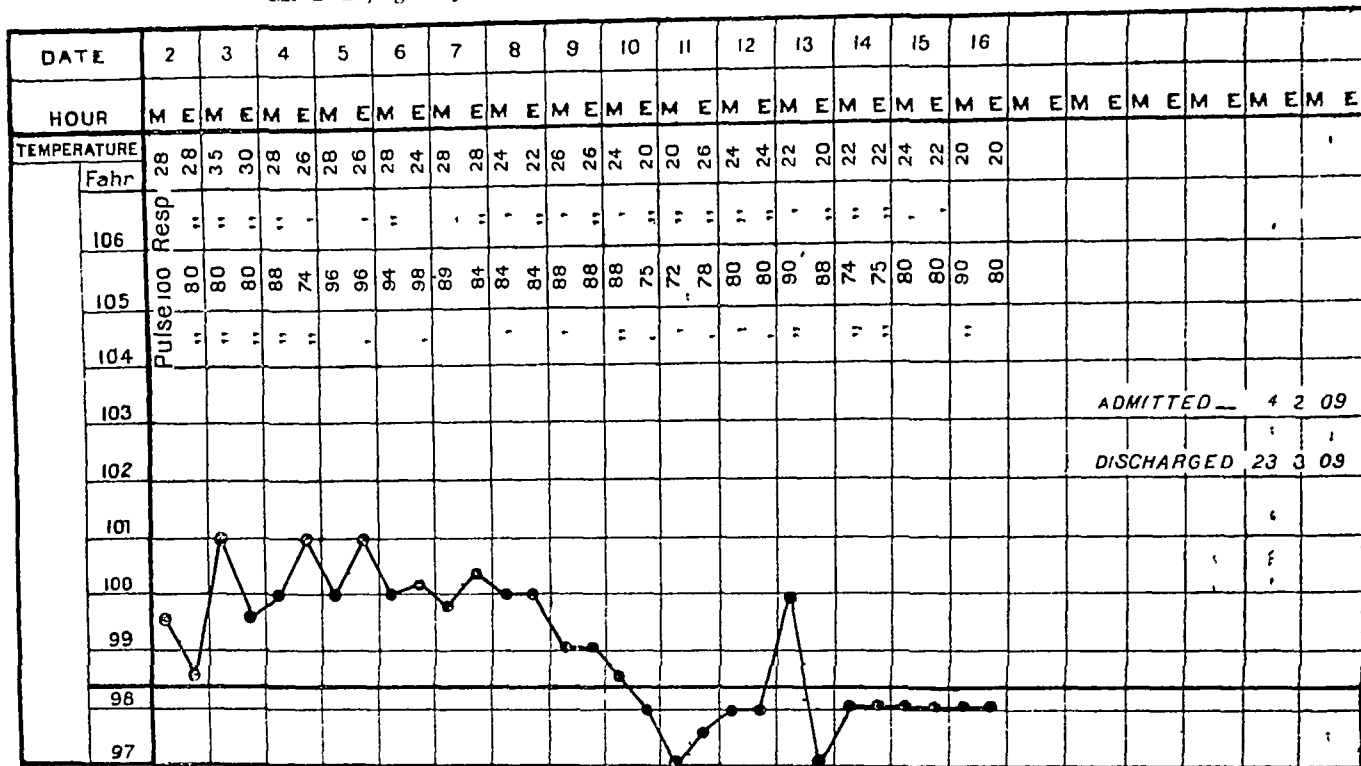
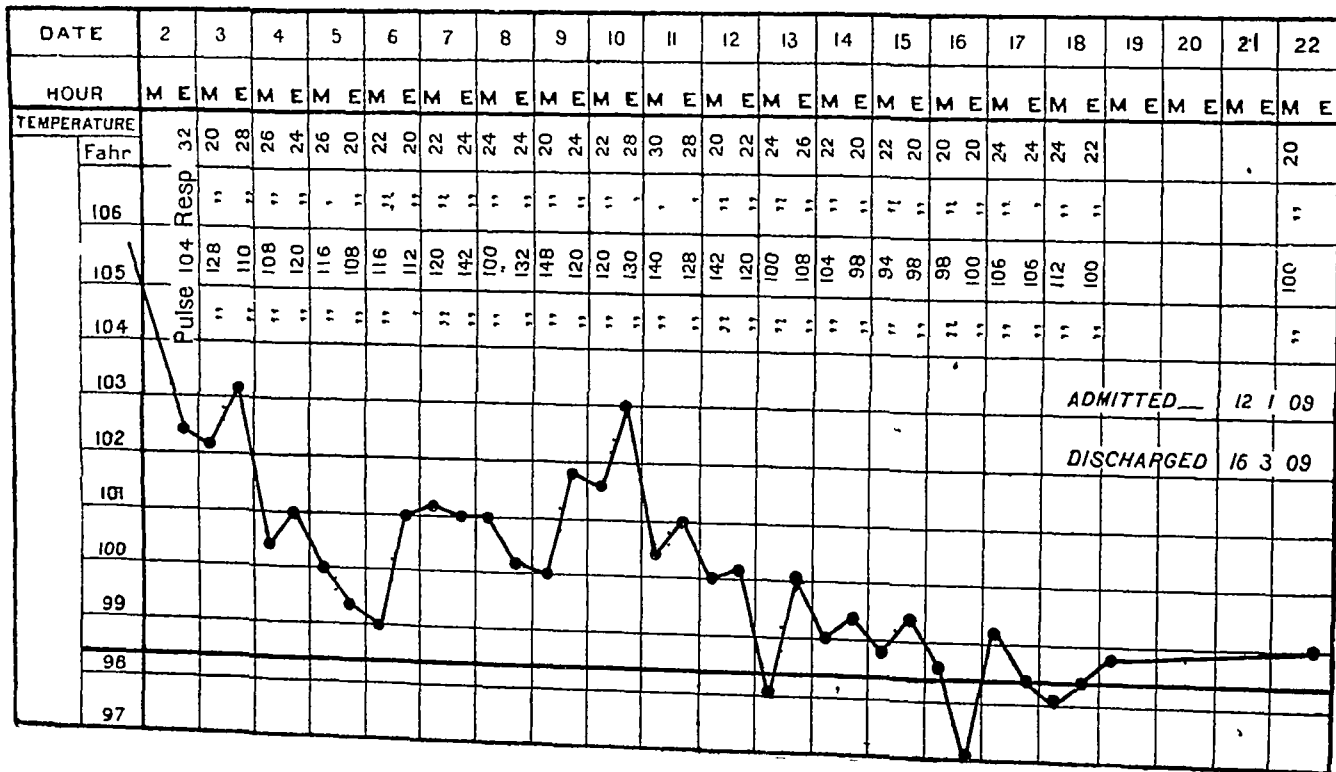


CHART II — Unprotected

Mr W E, age 45 years	Small pox—Confluent in infancy	Not sure whether he was vaccinated No scars	Probably vaccinated
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CLINICAL NOTES ON SMALL-POX

By MAJOR J. C. S. VAUGHAN, M.D., I.N.S.,

Superintendent, Campbell Medical School, Sealdah

CHART III—Unprotected

Mrs B, age 51 years Small pox—Confluent Vaccinated in infancy No scars visible

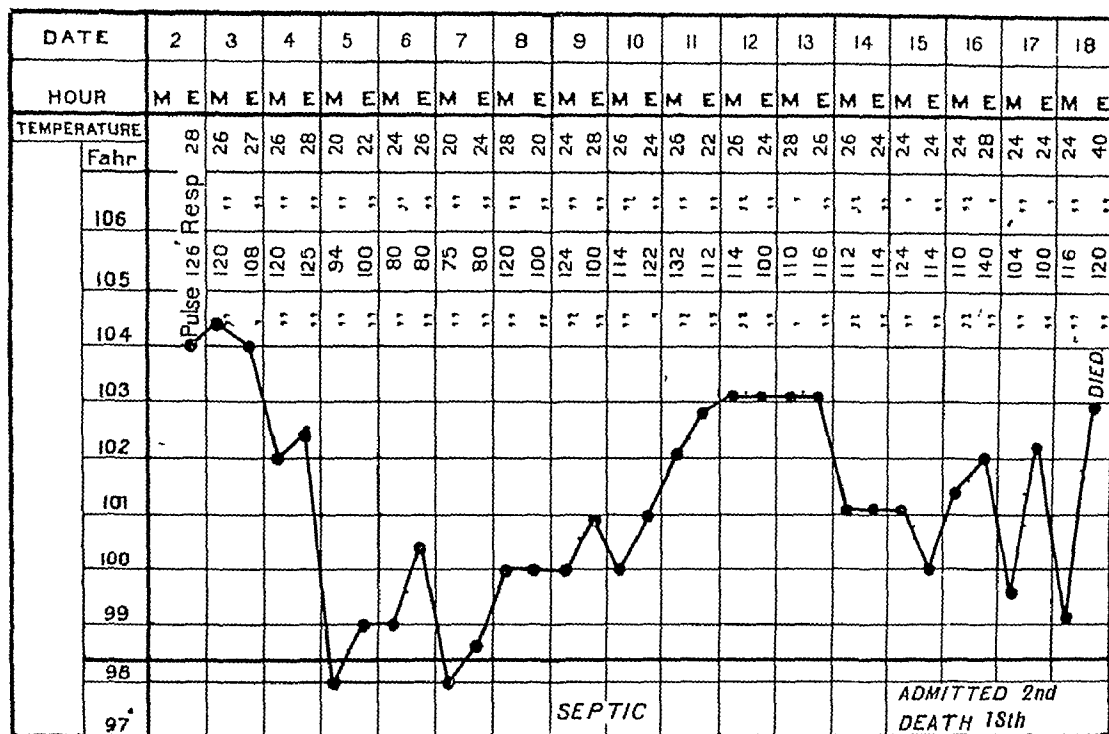
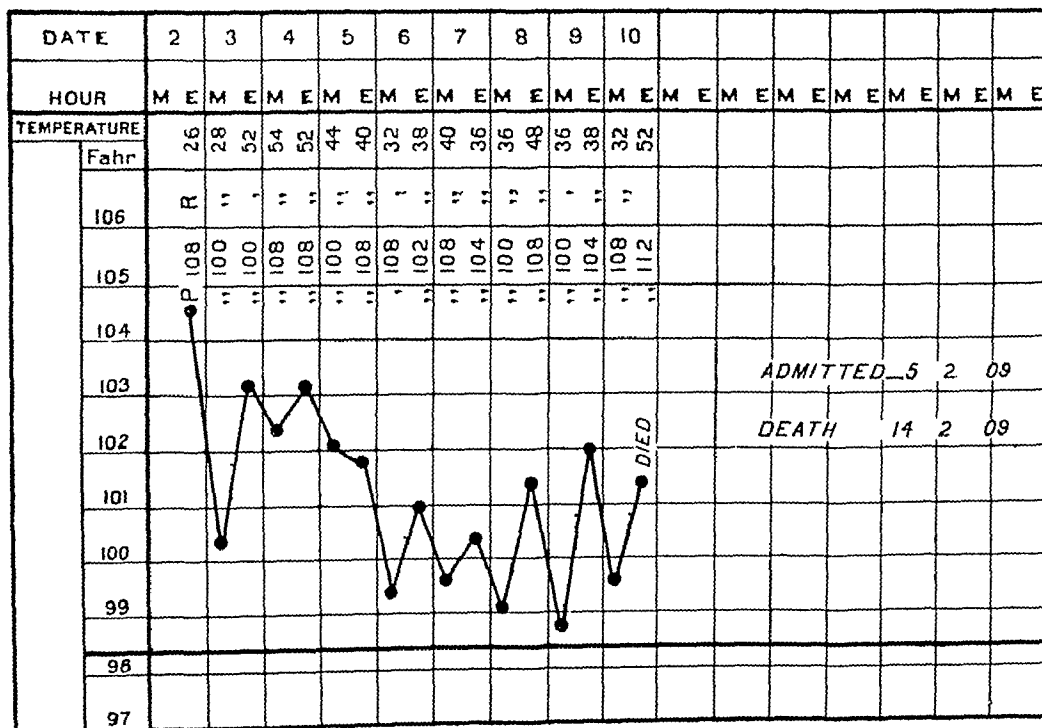


CHART IV—Unprotected

M. L. H. R., age 32 years Small pox—Confluent Hemorrhagic Not vaccinated



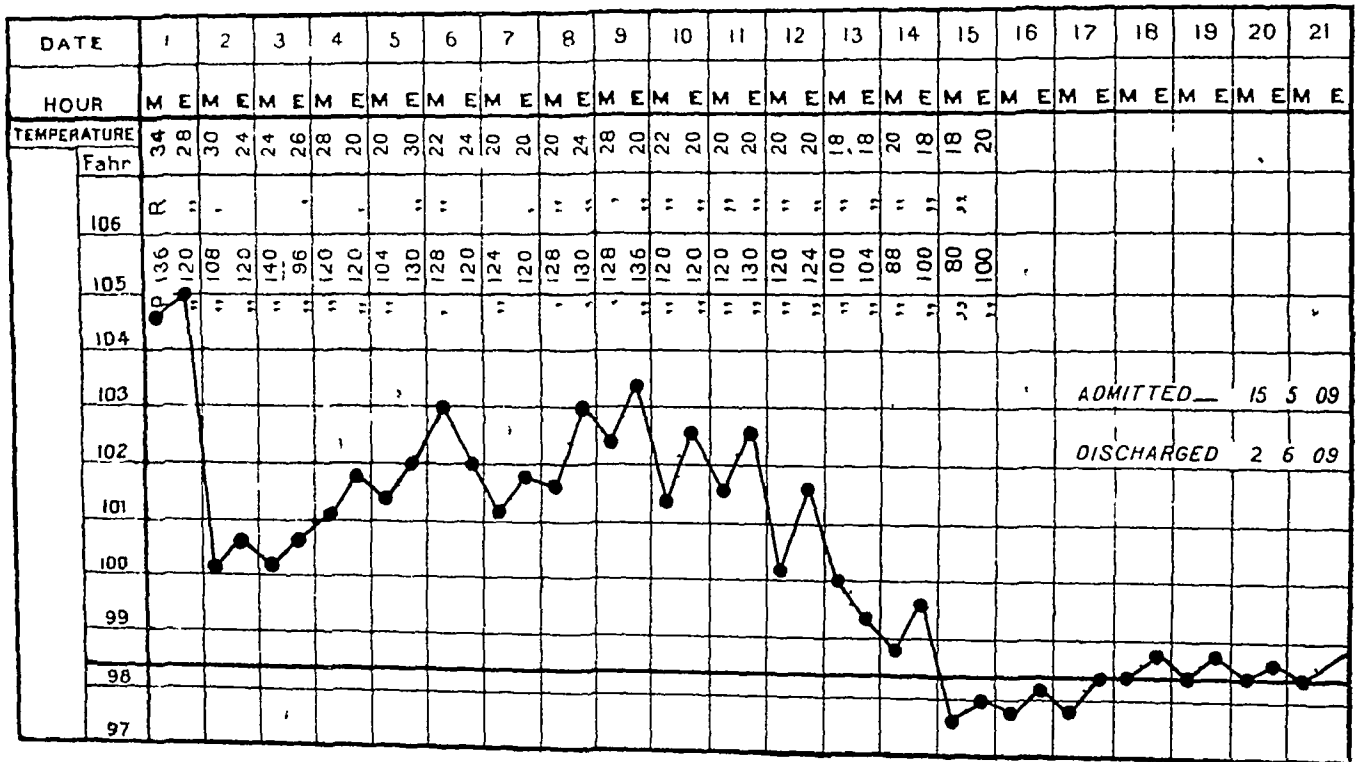
CLINICAL NOTES ON SMALL-POX

By MAJOR J C S VAUGHAN, M.D., I.M.S.,

Superintendent, Campbell Medical School, Sealdah

CHART V—Unprotected

Baby F, age 5 years Small pox—Confluent Not vaccinated



CLINICAL NOTES ON SMALL-POX

By MAJOR J C S VAUGHAN, MB, IMS,

Superintendent, Campbell Medical School, Sealdah

CHART VI - Unprotected

Mr G A, age 21 years Small pox—Confluent Not vaccinated

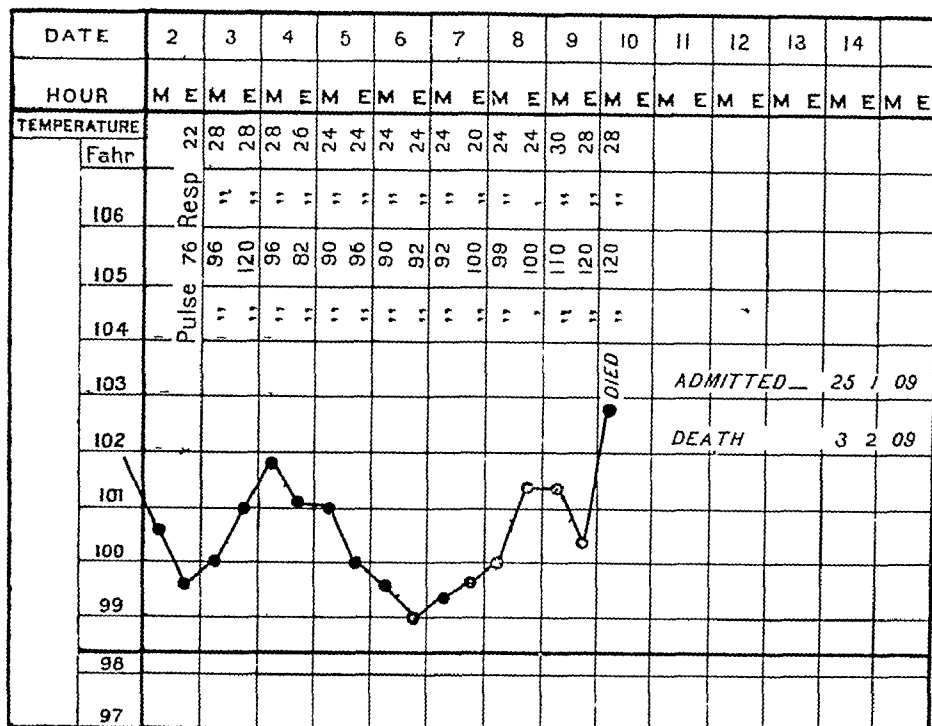
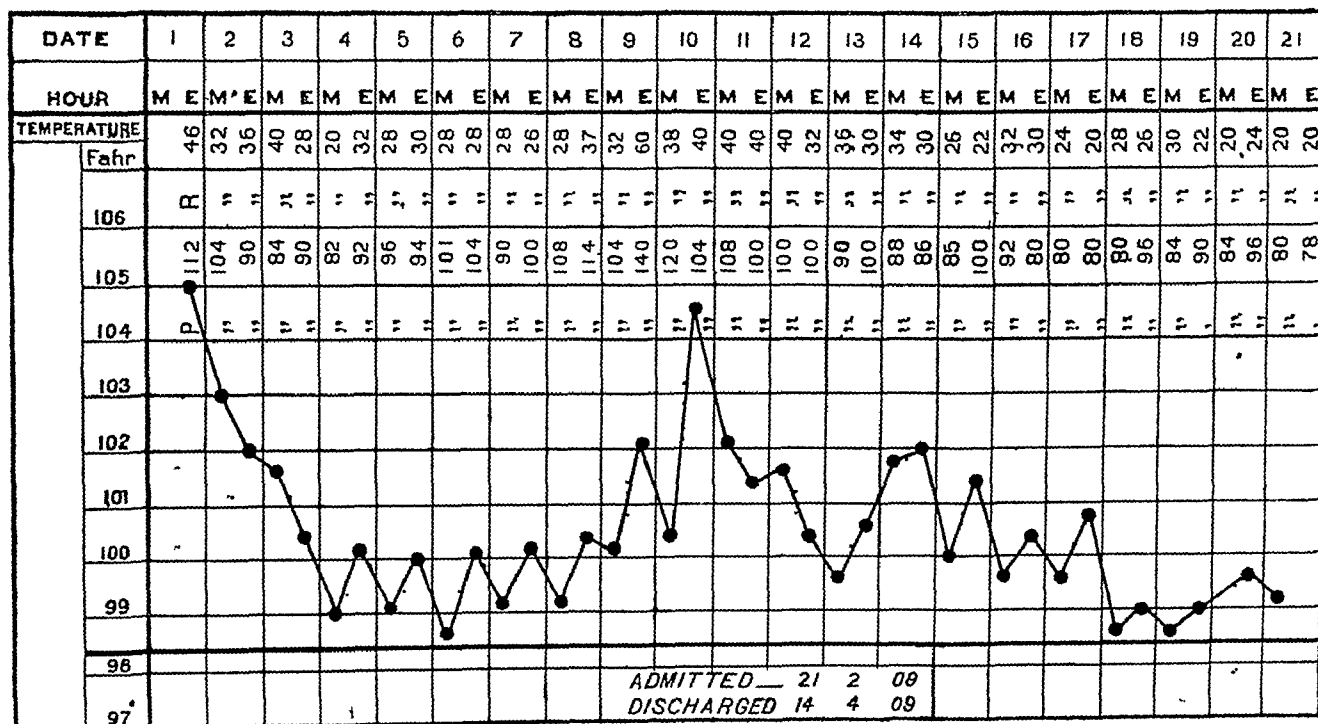


CHART VII - Unprotected

Mrs P, age 32 years Small pox—Confluent Vaccination in childhood No scars visible



CLINICAL NOTES ON SMALL-POX

BY MAJOR J C S VAUGHAN, M.B., I.M.S.,

Superintendent, Campbell Medical School, Sealdah

CHART VIII - Unprotected

R S, age 13 years Small pox—Confluent (Septic complication) Not vaccinated

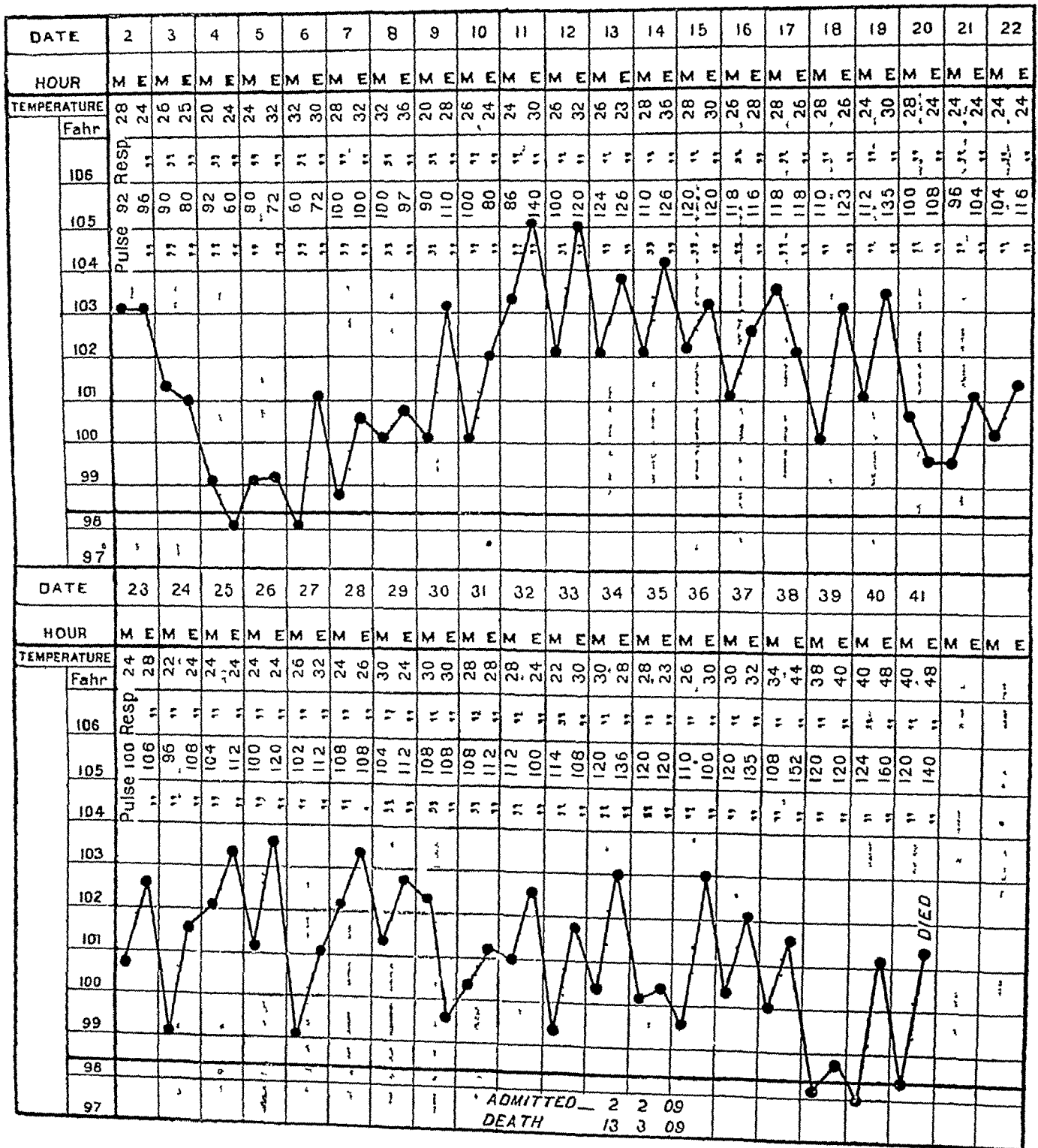


Table showing incidence of Small-pox cases in General wards of Campbell Hospital from January 1905 to May 1909 inclusive, ward by ward—(contd)

Number	Date of admission to General ward	Date of transfer to Small pox ward	Number of days in General ward	Period of illness on transfer to Small pox ward	Date of transfer of last case from ward to Small pox ward	Number of days since transfer of last case from the ward	Ultimate character of eruption	Ultimate result	Whether possibly or probably infected from within the Hospital	Averaged daily strength of ward during period indicated by bracket
1	2	3	4	5	6	7	8	9	10	11

TEMPORARY BLOCK—(Male)—(continued)

3	16 3 09	17 3 09	2	5F 3R	14 3 09	4	Discrete	Cured	No	54.16
4	17 3 09	18 3 09	2	6F 4R	17 3 09	2	Modified	Do	No	
5	18 3 09	19 3 09	2	5F 3R	18 3 09	2	Confluent	Do	No	
6	23 3 09	25 3 09	3	6F 2R	24 3 09	7	Do	Do	No	
7	27 3 09	27 3 09	1	3F 1R	25 3 09	3	Hæmorrhagic	Died	No	
8	26 3 09	26 3 09	3	6F 2R	27 3 09	2	Modified	Cured	No	64.96
9	26 3 09	28 3 09	3	3F 1R	27-3 09	2	Confluent	Died 30 3 09	No	
10	2 4 09	3 4 09	2	6F 3R	30 3 09	5	Do	Died 8 4 09	No	
11	2 4 09	3 4 09*	2	5F 2R	30 3 09	5	Modified	Cured	No	
12	10 4 09	11 4 09	2	3F 1R	3 4 09	9	Hæmorrhagic	Died	No	
13	12 4 09	13 4 09	2	4F 2R	11 4 09	3	Confluent	Do	No	66.4
14	14 4 09	15 4 09	2	4F 2R	13 4 09	3	Hæmorrhagic	Do	No	
15	16 4 09	18 4 09	3	6F 3R	15 4 09	4	Semi Confl	Do	No	
16	27 4 09	28 4 09	2	3F 2R	18 4 09	11	Hæmorrhagic	Do	No	
17	1 5 09	2 5 09	2	5F 2R	23 4 09	5	Do	Do	No	

* The figures 3 4 09 indicate that this case was moved to the Small pox Observation ward on 3 4 09 and was thence transferred to the Small pox ward on 6 4 09

PRELIMINARY NOTE ON INCREASED
INTRA OCULAR TENSION MET WITH
IN CASES OF EPIDEMIC DROPSY

By F P MAYNARD, M.B., F.R.C.S., D.P.H.,
LT COL., I.M.S.,
Calcutta

IN no account of epidemic dropsy that is available have I seen mention made of a rise in intra-ocular tension being met with in the disease. Yet during the last eight months I have come across more than twenty cases showing this complication. In some, recovery has occurred with or without a relapse, in some of the cases deep cupping has followed with almost complete blindness from atrophy. In the rest the time they have been under observation is too short to be sure what the final outcome will be. The importance of the recognition of the complication is so great that it seems advisable to publish this preliminary note, so that others may also be on the look-out to diagnose

and treat it and to help in elucidating its pathology.

In a family where epidemic dropsy breaks out and numerous members are attacked with dropsy, fever and cardiac troubles, it may be found that some of those attacked complain of dimness of vision. On examining them one usually finds the cornea a little steamy, the anterior chamber normal or deep, the pupil small or moderately dilated and acting but sluggishly to light, there is sometimes complaint of pain, but rarely is there any injection of the vessels. The tension of the eyeball is usually distinctly increased, sometimes it is normal and in one case it was diminished. Halos—generally rainbow-like—are spontaneously complained of. Among those not complaining of dimness of vision it will often be found that they have had halos at some time or another during the attack of dropsy. These halos are sometimes seen early in the morning, but more often later in the day and

lasting only a few hours, sometimes recurring again in the evening. They are not due to conjunctival secretion. Usually the failure of vision follows the dioptry, but in some cases it is noticed at the same time, and in two cases it preceded the dioptrical signs by a short interval. Such patients complain much of the sight becoming very foggy after looking at near objects. Two-thirds of the cases showed pathological cupping of the disc from 2 to 6 D in depth—a few showed only physiological cupping, though usually of considerable extent, and a few showed no cupping at all. The retinal veins are usually engorged, and both they and the arteries showed marked pressure-pulsation in several cases. Priestly Smith's scotometer frequently gave negative results, Bjerrum's sign being absent. The fields were generally contracted, especially at the nasal side. In none was the eyeball enlarged. None had K P or signs of nitis past or present. None of the patients had markedly small corneæ. Two were myopes. Two-thirds were men and one-third women. The ages of all except two were under 36. Eight were under 28 and there was no family history of glaucoma forthcoming.

The questions naturally arise as to whether these cases are really glaucoma, and if they are, or whatever they are, are they due to epidemic dioptry? That they are directly due to that disease is rendered probable by their numbers and by the ages at which they have been met with. A case now and then of ordinary chronic glaucoma occurring in a subject of epidemic dioptry would not prove anything, even if two or three occurred in the same family, for nothing is commoner than to find more than one member of a family attacked by chronic glaucoma. It is of the ordinary type, however, and is usually met with in elderly subjects.

When we find cases of unusual type—varying from cloudiness of the cornea with halos and slight increase of tension, up to almost complete blindness with marked increase of tension, deep cupping, etc. (still of unusual type, however—as regards anterior chamber, pupil and injection), occurring in young people who are the subjects of, or recovering from, epidemic dioptry, we cannot refuse to regard the latter disease as being the cause of the former. The fact, that some of the classical signs of glaucoma were absent does not prove much. It rather confirms the view that the disease really is true glaucoma. For we know that in buphthalmus or glaucoma in young subjects, such as most of those patients were, the pupil is rarely dilated, the anterior chamber is never shallow, and the tension is not always much increased. The grosser signs of buphthalmus, *viz*, enlarged globe, displacement of the lens and irido-donesis, would not be found in cases that had lasted so short a time as these.

Supposing that the disease is glaucoma due to epidemic dioptry, how does the increased

tension come about? Rise of intra-ocular tension must be due either to increased formation of lymph or to diminished outflow. Both conditions may be present. In the cases now described evidence of diminished outflow is incomplete. The anterior chamber is not shallow and the filtration angle *appears* open while the ciliary veins are not enlarged. There were no signs in any case of inflammation of the uveal tract, so that this may be excluded as the cause. Having regard to the cardiovascular phenomena met with in epidemic dioptry it seems reasonable to attribute the ocular symptoms to a passive congestion of the uveal tract leading to increased production of lymph. These cases tend to prove A. Terson's view that glaucoma may in some cases be nothing more than oedema in a closed cavity. Extensive observations on the blood pressure in epidemic dioptry are wanting, but in several of these cases it was taken by Martin's modification of Riva-Rocci's sphygmomanometer and proved to be low as indeed one's pulse examinations had led one to expect. In the few in which it was high the patients were elderly, and the certainty of the connection between the rise in tension and the dioptry was less certain. The explanation may be, therefore, that there is a passive oedema and transudation of lymph into the eyeball, setting up increase of tension with all its consequences. This transudation would be the more effective if the lymph secreted or filtered off were of a more colloid nature than the ocular lymph usually is. The excretion through the folds of the pectinate ligament into the canal of Schlemm would be interfered with thereby and tension more easily raised. There is no evidence, I believe, as yet to show what the lymph or serum composition or blood coagulation time is in epidemic dioptry. Again, the question arises, could the increased secretion and possibly altered composition of intra-ocular lymph be due to irritation of secretory nerves in the eyeball? This takes us back to Donders' explanation of glaucoma, and considering the strong views held by many as to the identity of epidemic dioptry and beriberi (a disease in which the nerves are markedly attacked by the poison), it is a question that should be taken into account.

AN INDIAN SCREW-WORM

By R. LLOYD PATTERSON, L.R.C.P.S. (EDIN.),

Medical Officer of the Empire of India and Ceylon Tea Co., Ltd., Borjuli, Tezpur, Assam.

THE name "Screw-worm" is so tersely descriptive of the larva in question, both as regards its appearance and its boring properties, that it seems a mistake to limit it to the American species.

Theobald, in Braun's "Animal Parasites of Man," says—"This (*Lucilia Macellaria* [Fabricius]) is an American fly, which deposits its eggs on ulcers, in the auditory canals, or nostrils of persons sleeping in the open air. The larvæ ("screw-worms"), which are provided with strong spines, work themselves into the nasal and frontal sinuses, into the pharynx, larynx, etc., perforate the mucous membrane and even the cartilage, and may cause the death of their host." He makes no mention of its occurrence outside the American tropics, although he records the fact that the maggots of other blue-bottle and green-bottle flies may be found in the wounds or natural apertures of man in other parts of the world.

The fly is labelled with so many synonyms that one cannot but suspect some confusion of species. *Chrysomya* or *Comptosomya* *Macellaria* seems to be the name most generally accepted, but *Lucilia Macellaria* is frequently quoted, and Theobald gives the additional synonyms of *Lucilia Hominivorax* and *Calliphora Anthropophaga*. The latter titles appeal to anyone who has seen the horrible lesions produced by these man-eating maggots. Manson gives a short but graphic description of the American form of myiasis, and suggests that similar anthropophagous larvæ must exist in Africa and the Eastern tropics, although they have not yet been identified. MacLeod, in Allbutt's system, says—"This fly (*Lucilia Macellaria*) occurs principally in South America, but it has also been encountered in North America, Cochim China, and Tonquin."

It is not a very far cry from Indo-China to Assam and Eastern Bengal, and the climates in summer are practically identical, so it is permissible to suppose that the cases mentioned by MacLeod were due to the maggots described here.

Besides, as Daniels points out, the American fly has a striped thorax, whereas none of the green-bottles associated with this case had any markings whatever.

The fly and its larvæ are common enough, and the latter are frequently present in the sores of cattle and more rarely in dogs and cats.

That the disease is rare in man is only due to the fact that even the filthiest and most lethargic coolie objects to flies crawling about his ears or nostrils, and even if oviposition has been accomplished, the first irritation of the young maggots would in most instances lead to their speedy expulsion. Of my own cases all have been wretched, cachectic creatures, undermined by malaria, anæmia, or enteritis, marked with the scabs and pustules of neglected itch or ring-worm, and lethargic and filthy in the extreme.

The Fly—This muscid is about the same size as the ordinary domestic blue-bottle, and has

the same dashing noisy flight. Its thorax and short, round abdomen are of a uniform metallic green, and exhibit no stripes or other markings. It is comparatively hairless, although the lens shows a few strong longitudinal bristles on the posterior part of its thorax. It has large brown compound eyes and small antennæ with plumose arista. The proboscis is soft and in constant use, apparently feeling or tasting everything as the fly crawls actively over open sores or fouled dressings or bedding. Like other *Lucilia* it is not particular what it eats, or where it lays its eggs, and I have reared screw-worms on a piece of putrid meat, but they undoubtedly prefer living sores, and may be found burrowing in the festering wounds of bullocks, dogs and cats. That man is so rarely attacked is only due to the fact that he will not tolerate any form of myiasis that he can possibly avoid.

The Larva—This is most aptly described by its American name of "screw-worm." It is 16 mm long and 3 mm broad at its widest part. Looked at from above it is quite straight, one end tapering to a point, and the other, less tapered, forming a sucker, while the raised belts or ridges dividing its segments add to the screwlike appearance. Viewed laterally, however, this resemblance is lost owing to the natural curves of the larva. The body is white, sometimes dark with ingested blood, and is divided into 12 segments by raised belts. At both ends the belts are much smaller than the intervening segments, but in the middle of the body both elements are of equal size, the belts having a peculiar doubled appearance on their lateral aspects. These belts or ridges are darker and harder than the body of the maggot, feel horny to the dissecting needle, and are studded with short spines. The last segments of the tapered end is provided on the ventral aspect with a pair of strong, black chitinous hooklets. The other end of the larva terminates in a powerful circular sucker, armed with six teeth and provided centrally with a pair of strong, black, kidney-shaped maxillæ, hard and gritty to the touch of the dissecting needle. Immediately below this remarkable armature is a knob with 2 papillæ that appear to act as feet. The maggots, when doused from their fostering cavities, evince an intense dislike to daylight, and progress with extraordinary activity towards the nearest available hiding-place. They appear to travel backwards, stretching out their tapered extremity and striking the hooklets into the ground in front of them, and then bringing up the remaining segments by a telescopic action. The sucker, being turned upwards, takes no part in this movement.

Notes on the case—Saro, Dom, female, age 35. Came to Assam in 1894, and for many years was one of the best coolies on the garden. During the past 12 months she suffered frequently from various ailments, including ankylostomiasis,

malaria, anæmia and dropsy. She lost weight rapidly, had a chronic cough, hectic fever and occasional asthmatic attacks, but no positive signs of phthisis. She was a very troublesome patient, and frequently absconded from the hospital, presently returning in a half-starved and filthy condition.

May 28th Admitted to hospital suffering from Bronchitis and Anæmia, accompanied with cough and nasal catarrh, very lethargic, debilitated, cachectic, and filthy in the extreme.

June 3rd Had an asthmatic fit, and sneezed and spat a little blood.

June 4th Nose swollen, black spot on bridge, foul smelling discharge, streaked with blood, severe frontal headache.

June 5th Slough on bridge of nose separated, showing deep, perforating ulcer communicating with nasal cavity.

June 6th Douching brought away 6 screw-worms in the morning and 4 in the evening.

June 7th Active treatment with chloroform, turpentine and nasal douche evicted upwards of 50 screw-worms.

June 8th 40 screw-worms removed in the morning and 60 at 12 noon, none in the evening.

June 9th No more screw-worms. Oedema subsided, pain less, fœtor diminished, and headache relieved.

June 12th After 3 days apparent improvement, the left side of the nose and left cheek suddenly swelled up, and 70 screw-worms were removed by the nose.

June 13th The skin below the left eyebrow sloughed, and the orbital cavity was found packed with hundreds of the maggots.

June 14th The remains of the nose sloughed, disclosing a single cavity stripped of everything down to the bone.

June 15th The right orbit was attacked, and the patient complained bitterly of deep seated gnawing pain in her cheeks, evidently the invasion of the antra.

June 16th—28th The process of destruction continued in spite of active treatment, 50 to 70 screw-worms being removed daily. Both orbits were excavated and the eyeballs pierced and destroyed. The skin sloughed as the invasion proceeded until the face was entirely eaten away. There were several generations of screw-worms present, varying greatly in size, but all showed the same characteristics under the lens. The patient, though heavily drugged, continued conscious to the end, and took her nourishment regularly, although it was difficult to get anyone to attend to her properly on account of the horrible fœtor. Cerebral symptoms were unfortunately conspicuous by their absence, and she

lingered on for a month from the date of her admission.

June 28 The patient died of exhaustion.

Post mortem—The appearance of the patient at death is shown in the last photograph. The skin, undermined by the maggots, had sloughed off from below the nostrils to halfway up the forehead. The skin of the eyelids and cheeks had also sloughed. The maggots had not attacked the skin itself except occasionally when some of their tunnels emerged on the surface. But they had attacked everything else, subcutaneous tissue, muscle, mucous membrane, cartilage, periosteum and even bone. The nasal septum had completely disappeared and the turbinates were stripped bare and gnawed down to mere ridges. The palate had escaped thanks to frequent gagging, but the Eustachian tubes were eroded, although no maggots were found in the tympanic cavity or mastoid cells. The frontal sinuses were stripped of their lining membrane, and the antrum of Highmore on each side was packed with larvæ. Both eyeballs were pierced and destroyed, and the recesses of the orbital cavities contained hundreds of maggots. The brain and its membranes showed no signs of invasion, and appeared to be perfectly normal, thus fully accounting for the unusually prolonged nature of the case.

Remarks—About 10 years ago I had 2 cases of screw-worm in Cachar, one of which (myiasis aurium) was fatal, and the other (myiasis nasi) recovered. In Tezpur District I have had one other fatal case (nasal) that died in a few days with meningeal symptoms, and two simple cases of myiasis of the scalp and hand respectively. I have no doubt the disease is fairly common in India, granting the necessary adjuncts of filth, lethargy, cachexia, and nasal or aural catarrh.

I am indebted for much valuable information to the authors mentioned in the text.

A Mirror of Hospital Practice

NOTES FROM THE HUGHLI HOSPITAL, 1903—1909

BY LIEUT COL D G CRAWFORD, M.B., I.M.S.,

Civil Surgeon, Hughli

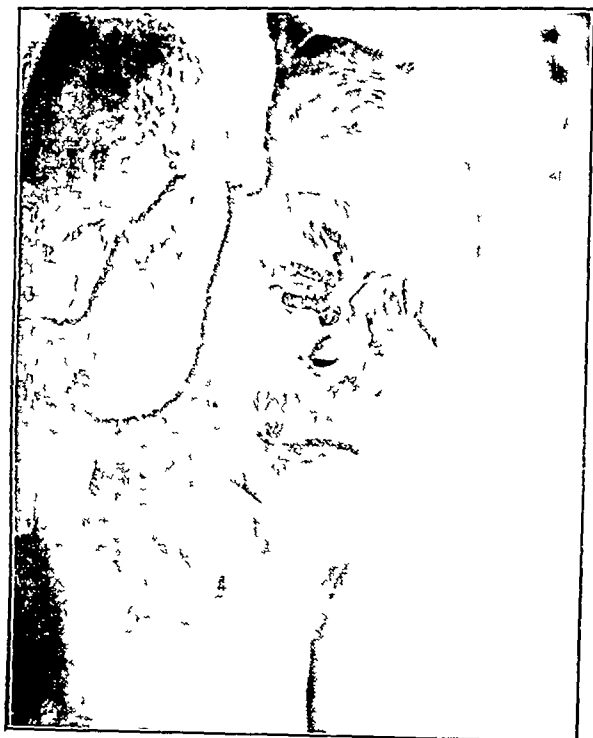
(Continued from page 340)

XII Case of fracture of the skull. Ram Sujan Panie, Hindu male, 30, admitted to the Imambara Hospital at 10-30 P.M., on 31d June 1906, having been knocked over by an engine, which struck the back of his head, at Bandel junction. He had a wound, $3\frac{1}{4}$ inches long, $\frac{1}{2}$ inch broad, on the back of the head, vertical from

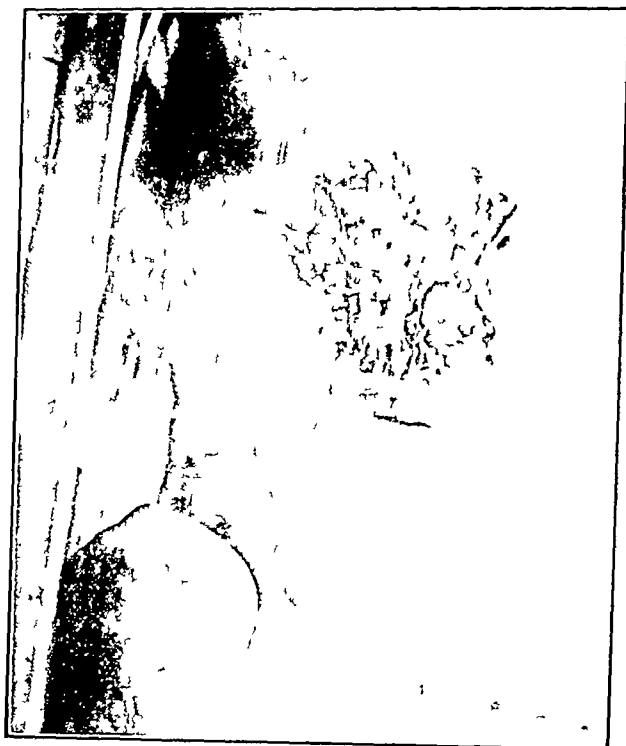
AN INDIAN SCREW-WORM

By R LLOYD PATTERSON, L.R.C.S. (EDIN.),

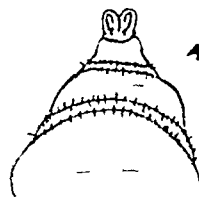
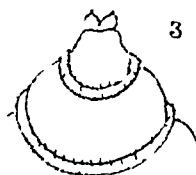
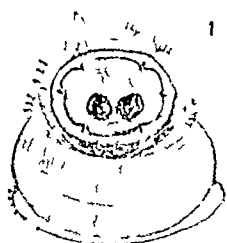
Medical Officer of the Empire of India and Ceylon Tea Co., Ltd., Borjuli, Tezpur, Assam



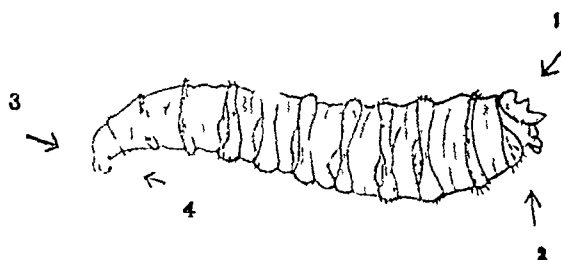
PHOTO, JUNE 14TH, 1909



PHOTO, JUNE 25TH 1909
(Post mortem)



1 Dorsal view of sucker and footlets 2 Ventral view of footlets 3 Dorsal view of hooklet papillae 4 Ventral view of hooklets embedded in their papillae



Lateral view of Screw worm The arrows indicate the points of view of the four preceding diagrams
The curves are more pronounced than in life owing to the action of the spirit

above downwards, a little to the right of the middle line, and so clean cut that it looked like an incised wound. There was a compound comminuted fracture of the occipital bone, a fragment $2\frac{1}{2}$ inches long, by one inch broad, being driven in and depressed. This fragment was removed, it was semi-circular, with its straight edge towards the middle line. Two small loose splinters were also removed, and the wound was cleaned and dressed. On admission the patient was unconscious, the next morning he had regained consciousness. The temperature rose to 101 on 5th June, fell to normal on the 6th and did not rise again above 99. By 30th June the wound had healed completely. On 6th July he got fever, his temperature rose to 104 that evening, and to 105 on the 10th July. It remained high till the 21st, when it fell to 101, and on the 22nd to 99. He was then taken away by his brother. He was supplied with a leather cap, fastened by straps round the head, to cover the situation of the bone which had been removed.

Remarks—This patient appeared to have been affected in mind by the injury, as he seemed somewhat weak-minded after his recovery. But of course I do not know what his mental condition before the injury had been.

XII *Case of fracture of skull, trephining*—Sham Chandar Gwala, Hindu male, about ten years, was brought from Bandel junction about 6 P.M. on 25th July 1906, suffering from injuries caused by a fall from a moving train. There was a wound, five inches long, beginning one inch above and behind the left ear, and running backwards and upwards to the top of the skull, a large semi-circular flap of skin being reflected forwards. The parietal bone showed a fracture, $1\frac{1}{2}$ inches long, two inches above the left ear, through this fracture arterial blood was oozing. A circular piece of bone, $\frac{3}{4}$ inch in diameter, was removed with the trephine from over the middle of the fracture. The dura mater bulged into the wound, on incising it, blood flowed freely. This was much diminished by a stream of water and by pressure. A pad and tight bandage were applied. The boy was doing well, and the wound healing, up to 9th August, when I went on leave. He was discharged cured on 16th September.

XIII *Case of avulsion of arm*—Bhawani Kanu, Hindu male, 10, was admitted to the Imambara Hospital from Nailati Jute mill at 5-30 P.M. on 24th November 1906, having had his left arm torn off in a jute "softener" about 4-30 P.M. The limb was completely torn off at the shoulder, the outer end of the clavicle sticking up from the wound. He was said to have lost a great deal of blood, but the axillary artery had been well twisted up by the force which tore off his arm. Under chloroform, a double ligature was put round the artery, the clavicle was nipped off with bone forceps, level with the wound, and the edges of the wound

sewn together. The original wound did well, but sinuses formed in connection with it, over the lower ribs and behind the scapula, which had to be laid open and drained. He was finally discharged cured, with all wounds healed, on 14th February 1907.

Remarks.—I visited the mill to see how this accident had occurred. The "softener" may be described as a long trough, some three feet high, and thirty feet long, containing some sixty revolving fluted cylinders, with a sloping wooden platform, about two feet long, at each end, and a solid roller at each end, between the platform and the cylinders. A man stands in front of the platform, at the feeding end, and arranges the jute, which passes into the machine in a constant supply, and is there crushed by the revolving cylinders. There is no danger in this work, if the feeder is reasonably careful. It is only at the feed end where the jute goes in, that one can get caught by the roller. The feeding of the machine is work on which only adult males may be employed. This accident occurred on a Saturday afternoon, after the mill had stopped work for the week. The boy, who was not employed at, or anywhere near, this machine, had sat down on the sloping feed platform of the machine. Some one passing by, either out of sheer malice, or as a joke, to frighten the boy, pulled the handle by which the machine is set to work and stopped, and set it going. The boy lost his balance, and fell backwards, his hand being caught in the roller at the near end of the trough, which as it revolved pulled in his arm. It was never found out who set the machine going.

I have seen many accidents caused by the "softener," all due to sheer carelessness. On one occasion I had to amputate the leg of a man employed as feeder. Instead of feeding the jute into the machine with his hands, while standing in front of the platform, he had been sitting on the platform, and feeding it in with his toes. In so doing his foot got entangled in the jute and carried in under the roller.

The machine has a handle, by which it can be stopped in a second. But, unless one of the European mill assistants happens to be close by, it is not likely that any one near will have sufficient presence of mind to pull the handle, if an accident occurs.

Not long after the accident described above, a man was sent in, from another mill, who had had both arms torn off at the shoulder joint in the softener. He died almost immediately after his admission. The boy Bhawani Kanu has since been employed in the mill, doing light work as attendant in the mill dispensary. On 30th June 1909, he was again admitted to the Imambara Hospital, with simple fracture of the right thigh, caused by a fall from a ladder. He was discharged cured on 7th August.

XIV. *Case of recurrent cystic tumour of hip*.—Sidhu Bagdini, Hindu female, 26, was

admitted to the Female Hospital, Chinsua, on 29th March 1907, with a tumour, the size of a cocoanut, over the left hip. The tumour was freely moveable, and fluctuated in parts. It was excised under chloroform on 31st March, and proved to be cystic, containing mucoid masses of tissue and dark fluid. A very large gap remained after excision of the tumour, the edges were brought together over a drainage tube. She was discharged "cured," with only a small flat ulcer, half an inch square, remaining, on 22nd April.

She was again admitted on 12th September 1907, with recurrence, she was now also three months pregnant. The tumour was now large, and showed distinct lobes. The first lobe, over the head of the femur, was the size of an orange, the second, below it, the size of a lemon, the third, below No 2, as large as a walnut, the fourth and lowest the size of a lemon. The second and fourth lobes were ulcerated on the top. The mass was again excised, under chloroform, on 16th September. After excision of the whole mass, a gap eight inches by five remained, but the edges came together on straightening the leg, and were stitched over a drainage tube. The upper lobe extended down to the head of the femur, periosteum of which was exposed. Each lobe consisted of a mass of gelatinous matter, with a little glairy fluid. Two masses, as large as walnuts, were shelled out from the first and third lobes during the operation. Only one large vessel required ligation. She was discharged on 23rd October, only a small flat ulcer remaining, and has not been seen since.

XV *Two cases of Necrosis of Lower Jaw*

Case I—Sarojini, Hindu female, 20, admitted from French Chandernagore to the Female Hospital, Chinsua, on 21st April 1907, with necrosis of the whole lower jaw, following an attack of smallpox three months before. There was a sinus at each angle of the jaw, through which bare bone could be felt, and pus exuded, and three other sinuses between the first two. On 23rd April 1907, under chloroform, the whole lower jaw was removed, in several pieces, with sequester forceps, the knife was not used at all, except to enlarge one sinus, the bone being cleared, without much trouble, with a gouge. The wound gradually healed, though with considerable deformity, she was discharged cured on 18th June 1907.

Case II—Pizarudin Sheikh, Musalman male, 40, admitted to the Imambara Hospital, Chinsua, on 16th July 1907, with necrosis of the left lower jaw, said to be of only one month's standing, no history of syphilis or of injury. There was a small sinus, under the border of the jaw, one inch to left of middle line, through which bare bone was felt with a probe. The alveolus was seen bare and dead at the site of the left lower bicuspids, which were missing. The whole left half of the lower jaw was extracted through

the mouth, under chloroform, the same day, the soft tissues being separated with an elevator. There was free hæmorrhage, which was stopped by pressure. The wound was stuffed with strips of lint, and healed almost by first intention, the patient being discharged cured on 25th July.

XVI *Case of multiple injuries of bones of arm*—Matabi, Hindu male, 16, was brought to hospital at 8 A.M., on 1st August 1907, with the following injuries, caused by his right arm having been caught in the machinery of a jute mill, about 6 A.M. (a) A large wound on outer side of right forearm, with fracture of both bones, the upper fragment of the radius protruding from the wound. (b) Fracture of humerus at junction of middle and lower thirds, with a small external punctured wound communicating with the fracture. (c) A wound running across right axilla, three inches long, one deep. (d) A long superficial wound, little more than a severe scratch, extending from the wound in the axilla, down the front of the upper arm, to the elbow. Under chloroform the protruding fragment of the radius, about 1½ inches long, was cut off by bone nippers, the broken bones were brought into apposition, the wounds in the forearm and axilla stitched and dressed, and an angular splint applied to the arm and forearm on the internal side, with two short splints externally. His temperature was 103.6 on the evening of 2nd August, after which it gradually sank to normal, and the wounds slowly healed. On 9th September about an inch more of the radius was removed, quite loose. On 13th October his parents removed him from hospital, but he continued to attend as an outpatient. On 31st October he was again put under chloroform, and an incision made down to the humerus, from which a sequester one inch long was removed. On 4th November another small fragment was removed from the radius. He was readmitted to hospital on 22nd December, and put under chloroform for the third time on the 23rd, when a quantity of dead bone was removed from the humerus, a narrow sinus extended right through the bone, at the site of fracture, from side to side. No dead bone could be felt in the forearm. Granulation tissue was scraped away from both wounds, and the elbow joint stretched, while under chloroform. He was again removed from hospital on 25th December. He was last seen on 20th February 1908, there was then still a small superficial ulcer on the middle of the outer side of the right upper arm, the forearm was healed, but much wasted, he had fair use of the right hand, though very little strength in the arm.

Remarks—When first I saw this case, I thought that nothing less than amputation in the upper third of the arm would be of any use. However, at the request of the boy's father, an attempt was made to save the arm, with the result described above. Though he

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had little power in the arm, he had the full use of his fingers, and fair use of the hand as a whole. And any remains of the hand, even two usable fingers, are better than no hand at all.

XVII *Case of old injury to arm.*—Kali Chann Keoria, Hindu male, 45, was admitted to the Imambara Hospital, Chinsura, on 31st February 1908, for ulcer caused by a burn. He had suffered a severe injury to the left arm, long before, he said fourteen years previously. The lower three inches of the humerus were missing, a large scar covered the gap. The left forearm hung like a flail, and could be twisted, with the other hand, round a complete circle, and placed in any position. He could not raise the elbow at all, except by elevating the shoulder, but could pick up small articles, like a pin, and lift weights up to ten pounds, with the left hand, while strength of grasp seemed to be undiminished.

XVIII *Case of Molluscum Fibrosum.*—Puti, Hindu female, 50, was admitted to the Female Hospital, Chinsura, on 13th June 1908, covered with molluscum fibrosum. From the top of the forehead to the knees there was hardly room to place a finger on the skin anywhere without touching a tumour. From the knees downwards the tumours were less plentiful, but scattered tumours were present all over the legs, feet, and even the toes, while a few very small tumours were seen on the soles, as well as on the palms of the hands. Most of the tumours varied in size from that of a large bean to that of a small pea, but there were larger tumours, the size of walnuts, on the left knee, left hip, and right forearm, while the largest of all, the size of a lemon, grew from the back of the proximal phalanx of the left forefinger. This tumour, which was attached by a pedicle, ulcerated, and painful, was excised under chloroform the same day, and at the same time two small tumours, the size of large peas, were excised from the right upper eyelid, where they were said to be causing pain in the eye and interfering with sight. She left hospital, doing well, two days later.

Remarks.—Molluscum is a not uncommon disease in Bengal. In Fox and Fairquhar's "Endemic Skin Diseases," Dr Wise (9) describes it as common at Dakka. Chevers also (10) describes a number of cases.

XIX *Case of Obstruction of the Bowels.*—Nnoda, Hindu female, 30, was admitted to the Female Hospital, Chinsura, on 25th August 1908, with a history of having passed no stool for four days. The pulse was good, no vomiting, abdomen not distended. She was given an enema and castor oil, the enema produced only a scanty stool. The next day, the 26th, the abdomen had become distended, and faecal vomiting had set in. At 10 A.M., on the 26th, under chloroform, the abdomen was opened by an incision four inches long, extending downwards from the umbilicus. A tight constricting band, very

firm and strong, like wire, was found crossing the small intestine, and was divided between two catgut ligatures. The intestine above the constriction was much distended and congested, dark purple in colour, but had not lost its gloss. The abdominal wound was stitched in three layers, and a hypodermic injection of m 10 liquor stychniae given. She had no fever. Forty-eight hours later, on the 28th, she passed a good stool. On 2nd September, slight suppuration was seen in the incision, several stitches were removed, and the wound healed in a few days. She was kept in hospital till 12th September, when she was discharged, with the wound firmly healed, never having had any rise of temperature after operation.

XX *Case of Intra-peritoneal Abscess.*—Soshi Bhushan Das, Hindu male, 22, of Gondalpara, was admitted to the Imambara Hospital, Chinsura, on 13th September 1906, with an ill-defined swelling on the left side of abdomen, which could be differentiated from the spleen, the bladder, and the iliac fossa. This swelling was said to have existed for a month, with constant irregular fever, and looseness of the bowels. On 14th September, under chloroform, an incision, about three inches long, was made from the last left rib to a little behind the anterior superior spine of the ilium, the muscles separated, and the peritoneum opened. An abscess was found amongst the small intestines, from which about twelve ounces healthy pus was evacuated. A drainage tube, five inches long, was inserted, and the peritoneum sewn to muscle above and below the tube. On the 16th the tube was removed, but had to be again inserted on the 18th. He was discharged cured with the wound healed, on 11th October 1908.

XXI *Case of Dracunculus or Guinea-worm.*—Makhan Shah, Mussalman male, 26, a resident of Bijapur in the Dekkan, was admitted to the Hughli jail as an under-trial prisoner on 19th September 1908, and on 7th January 1909 was sentenced to one year's rigorous imprisonment under section 109, Criminal Procedure Code, health good, weight 149lbs.

On 4th April 1909 he came to hospital, complaining of guinea-worm, a short length protruding from a sinus on the dorsum of the proximal phalanx of the fourth right toe. The worm was gradually wound up on a reel. On 13th April he broke the worm, pulling at it, the part extracted was then eighteen inches long. The sinus then closed. An abscess formed at the site, which was opened on 23rd April. On the 24th the rest of the worm, five inches long, was extracted. He was discharged cured on 29th April, and is still (24th July) at hard labour.

Remarks.—Guinea-worm is a rare disease in Bengal; this is the only case I have ever seen. It is extremely common in some parts of India, Sind, the Dekkan, Rajputana, Central India, the patient in this case had only recently come

from the Dekkan to Bengal Chevers (11) gives about six pages of comment on its distribution in India. It is also very common on the west coast of Africa, whence its usual name.

The following description of guineaworm, more than three centuries ago, may be of interest. It is taken from "The Voyage of Master Anthony Jenkinson, made from the citie of Mosco in Russia to the citie of Boghar (12) in Bactria, in the yeeere 1558" (13).

"So upon the 23rd day of December we arrived at the citie of Boghar in the lande of Bactria—There is a little river running through the midst of the said citie, but the water thereof is most unholosome, for it breedeth sometimes in men that drinke thereof, and especially in them that be not there borne, a worme of an ell long, hich lyeth commonly in the legge betwixt the flesh and the skinne, and is pluckt out about the ancle with great art and cunning, the Surgeons being much practised therein, and if she breake in plucking out, the partie dieth, (14) and every day she commeth out about an inch, which is rolled up, and so worketh till she be all out."

XXII Case of traumatic hernia—B K C, Hindu male 38, prisoner No 2581A, Hughli jail, sentenced at Alambagh on 4th June, 1909, to one month's rigorous imprisonment, under section 186, Indian Penal Code, obstructing a public servant.

He had a hernia in the left lumbar region, situated between the nipple line and anterior axillary line, over the 10th left rib, and the free ends of the 11th and 12th left ribs. The swelling could be pushed back into the abdomen so as hardly to show at all. On coughing it increased to a size, 4 inches long from behind forwards, 3 inches broad from above downwards, the protrusion lying in a direction slightly oblique from above downwards and from behind forwards. On its upper part was a scar, $2\frac{1}{2}$ inches long from before backwards, one inch broad from above downwards, lying in the same oblique direction as the swelling.

The contents were dull on percussion, and appeared to consist of omentum, which protruded from the abdominal cavity just under the 10th rib.

The hernia is said to have followed an accidental wound with a knife, inflicted about eight years ago.

Remarks—The victim was fortunate in recovering from a penetrating wound of the abdomen, inflicted in a remote mofussil village, far from skilled treatment.

XXIII Cases of congenital deformity

Case 1 Badsha Singh, Hindu male, 20, examined as a recruit for the police on 21st February, 1905, had a double little toe on each foot. There were two parallel sets of phalanges, the proximal both articulated on the fifth metatarsal bone, covered by the same skin, forming one toe, double the breadth of an

ordinary little toe. They were joined together throughout their length, except that each had a separate nail.

Case 2 Sakhi, Hindu male, 9, a boy worker, examined at Gauipur jute mill on 25th February, 1908. His left thumb had two distal phalangeal joints, separate for about $\frac{1}{4}$ inch, each with a well-developed nail.

Case 3 Samrai Teh, Hindu male, 9, a boy worker, examined at Kankinara jute mill, on 2nd October, 1907. Has an extra toe on each foot, making six toes in all on each foot, the 4th, 5th and 6th toes of each foot are webbed together, enclosed in one fold of skin, but each has separate phalanges and a separate nail.

In both hands the ring and middle fingers are webbed together, enclosed in one fold of skin, up to the nails, and also much distorted, each finger has three separate phalanges, and a separate nail.

Case 4 Karunomyo Nag, Hindu male, 26, came to the Imambara Hospital on 12th March 1908, with a sprain of the left elbow. He has a supernumerary distal phalanx on the left thumb. The extra phalanx is $\frac{3}{4}$ inches long, and is on the outer side of the normal distal phalanx, to which it is attached by connective tissue for three-fourths of its length. It has a small well-formed nail.

Case 5 Bhasha Dule, Hindu male, 30, prisoner No 1481A, Hughli jail, examined 1st June, 1908, has a small supernumerary thumb on the right hand, articulated to the outer side of the metacarpophalangeal articulation of the right thumb. The first phalanx stands out at right angles to the ordinary thumb, the second phalanx is at right angles to the first, and parallel to the ordinary thumb. It has a well formed nail. He has no power of motion over it.

Case 6 Kisson, Hindu male, 9, a boy worker, examined at Gauipur jute mill on 22nd December, 1908, has a supernumerary digit on the outer side of the left hand, articulated to the base of the metacarpal bone of the thumb. It has three phalanges, and a complete nail, and looks more like a finger than a thumb. It is freely moveable.

Case 7 M C, Mussalman male, 25, constable No 502, Hughli Police, examined 19th August 1909, has a supernumerary thumb springing from middle of outer side of proximal phalanx of right thumb. This extra digit is not articulated to any bone, it is about $\frac{3}{4}$ inch long, and has a well-formed phalangeal bone and nail.

REFERENCES

- (9) *Op cit* appendix, pp 106—111, see also p 23
- (10) *Op cit* pp 356, 476
- (11) Chevers, *op cit* pp 34—40
- (12) Bokhara
- (13) "Hakluyt's Voyages," Everyman's Library Edition, Vol I, p 455
- (14) The partie presumably means the worm not the patient

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THE NEW FACTORY ACT

In the *Indian Medical Gazette* for September 1908 (p 341) we published a leading article on the Report of the Factory Commission. The text of the proposed new Factory Act has now been issued, and there is little doubt that it will be passed into law in a practically unaltered form. The changes made by the new Act are considerable, and far reaching in character. Government propose to regulate by law the hours of work of all operatives in the largest and most important factories, the textile factories, *ie*, in the cotton and jute mills. This proposal is an altogether new departure. We are familiar with such regulation in the case of women and children, in India for nearly thirty years past, in England for double that period. But the regulation of hours of labour for adult males is a novelty in India, in England it is still one of those coming events which cast their shadows before. From one point of view, the proposal might be denounced as socialistic, from another, praised as paternal and humane. As in most mortal affairs, there is a good deal to be said on both sides.

The first Factory Act in India was passed in 1881. It provided for fencing of machinery, inspection, and reporting of accidents, and limited the hours of children's labour to nine. Seven was fixed as the minimum age for the employment of children, who remained in that category up to twelve years of age.

In 1890 a Factory Commission was appointed under the Presidency of Sir Alfred Lethbridge, KCSI, IMS, and in accordance with its recommendations was passed the Factory Act of 1891. The minimum age for the employment of children was raised from seven to nine, and the maximum age, after which they are considered as adults, from twelve to fourteen, then hours of labour were reduced to seven, those of women were limited to eleven, a compulsory midday stoppage and a weekly holiday were prescribed for all hands. Except in the last two respects, no restrictions were made in the hours of labour of adult males. Under this Act also medical inspectors were appointed, who were also *ex officio* certifying

surgeons of the ages of children. With a few exceptions, the Civil Surgeon was appointed *ex officio* medical officer and certifying surgeon for his district.*

It was intended at the time that this Act should be final, "a settlement as final as any settlement of such a question can be." The Commissioners specially reported that there was no desire among the general body of male operatives that their hours of labour should be regulated by law. If not fixed by law, they were fixed by nature, being limited by the hours of daylight, an average of about twelve hours a day throughout the year, longer in the hot, shorter in the cold, weather. Had these conditions continued, we should probably have heard no more of any Factory Committee, Commission, or Act.

But the conditions formerly prevailing were completely changed by the introduction of electric light into factories. The first electric light installations were introduced in some of the Bombay cotton mills in 1893, and the number gradually increased until now almost all textile factories work by electric light before daylight and after dark. The Bombay cotton industry enjoyed a "boom" in 1904-05. Owners, agents and managers were naturally anxious to make hay while the sun shone. The hands, if overworked, were highly paid. But with adults, and sometimes children, working fifteen hours a day or more, the conditions of labour were denounced as a scandal, public attention being drawn to them by a series of articles published in the *Times of India*, afterwards reprinted and widely circulated in pamphlet form. The allegations may have been in some respects exaggerated, but were in the main true. Government were practically forced to order a full enquiry.

A Committee, consisting of Sir Hamilton Fraser Smith as President, with Lieut-Colonel

* As far as the Province of Bengal is concerned, these medical regulations and appointments were promulgated in Bengal Govt, Genl Dept, Miscellaneous, No 1312 of 13th April 1892, forwarded with I. G. O. H Circular No. 22 of 15th July 1892. Inspections were ordered half yearly. The Civil Surgeon was permitted to draw ten rupees per month for each factory with over 200 hands, five rupees per month per each factory with less than that number. In 1893, under Govt of India, Home Dept, No 593 of 17th May 1893, forwarded with I. G. O. H Circular No 53 of 14th July 1893, these fixed allowances were abolished, and fees for inspection were sanctioned, Rs 32 each inspection for factories with over Rs 16 for factories with under 200 hands, subject to a maximum of Rs 2,400 a year.

J F Maclaren, Civil Surgeon of Allahabad, and Dr Turner, Health Officer of Bombay, as members, was appointed to examine the conditions on the spot, and visited the chief labour centres in India in the cold-weather of 1906-07. This committee reported in favour of a twelve-hours day, but were opposed to the creation of a special class of "young persons."

A large and representative Commission, including three members representing the millowners, sat during the cold weather of 1907-08, visiting the chief centres of industry, and taking evidence. This Commission included two medical members, Lieut-Colonel McTaggart, Inspector-General of Prisons in the United Provinces, and Dr Nan, an Indian medical man from Madras. The former, however, was unfortunately incapacitated by illness during the greater part of the time the Commission was at work. This Commission's report was to much the same effect, practically, as that of the former committee. They found that the conditions of work, in textile factories, were undoubtedly calculated to cause physical deterioration, and were struck by the marked absence of elderly men from factories, although the demand for labour is largely in excess of the supply. Only one member, however, Dr Nan, was prepared to go the length of saying that these conditions actually had caused physical deterioration. All were agreed that Government must seek to limit the working day to twelve hours. But only Dr Nan recommended that this should be done by direct legislation to this effect. The rest of the Commission proposed to attain the same end indirectly, by limiting the hours of labour of women, children, and "young persons", the last a new class of workers, to include all young adults from fourteen to seventeen years of age. By restricting the hours of labour of these three classes to 11, 6, and 12, respectively, and by forbidding their employment before 5-30 A.M. or after 7 P.M., the Commission considered that the twelve-hour working day for all, including adult males, might be practically though indirectly attained.

The above argument rests entirely upon the supposition that no textile factory could arrange to do without the labour of young persons, women, and children. No doubt it would be difficult, and it would certainly be expensive, to run a textile factory with adult male labour only. But conditions change, and what is now

difficult might hereafter be found more easy. If the intentions of Government, indirectly expressed, were in time extensively evaded, it would be necessary to tinker with the Act anew. The Government have, therefore, determined to settle the matter by limiting the hours of labour, in all textile factories, to twelve a day, for all classes of hands. This being so, the creation of a new class of young persons is unnecessary. Employment of women and children before 5-30 A.M. or after 7 P.M. is forbidden, and, unless an approved shift system is in force, of adult males also.

The new Act consists of nine chapters with 52 clauses. The date from which it will come into force is left blank for future determination.

The first chapter is preliminary. By clause 2 all indigo factories, also tea gardens and coffee plantations, are excluded, also all factories employing less than fifty hands. Millgearing, shifts, and textile factories are defined. Practically, the latter consist of Jute and Cotton mills. Paper mills are expressly excluded.

Chapter II deals with inspectors and certifying surgeons. Under clause 7 the certifying surgeon may delegate his duty of certifying children to any qualified practitioner, temporarily, subject to confirmation by himself at his next visit. Practically, this appears to contemplate that the native doctor of the mill will certify the children in the first place, subject to confirmation by the certifying surgeon at his next visit. This clause is new.

Chapter III, headed "Health and Safety," provides for ventilation, lighting, water-supply, latrines, protection against fire, etc. In clause 11 it is ordered that water used for humidification of the air must be drawn from a pure source.

Chapter IV deals with hours of employment and holidays. Clause 21 provides for an interval of half an hour after six hours work, except in factories in which a system of shifts approved by the inspector is in force. Clause 22 provides for a weekly holiday, usually on Sundays. Clause 24 deals with employment of children. The provision that the child must obtain a certificate before employment in the factory is new. Such a regulation would have been impossible under the old system of inspection by medical inspectors visiting the factory half-yearly or quarterly, but may be worked by special inspectors visiting weekly or fortnightly, and temporarily delegating their power of certifying, pending their next inspection, to local medical men. By

clause 25 cotton ginning factories are excluded from the rule that women shall not be employed before 5-30 A.M. or after 7 P.M.

Chapter V is entitled textile factories. Clause 32 directs that no child shall be actually employed for more than six hours a day in a textile factory. In other factories children may still work seven hours a day.

Chapter VI is concerned with notices and registers. A new register is introduced, of workers under sixteen years of age.

Chapter VII, rules, gives power to Local Governments to make rules under the Act. Among the more important of such rules are those dealing with duties of certifying surgeons, standards of ventilation, cubic space, latrine accommodation, and water-supply.

Chapter VIII enumerates penalties and procedure. By clause 42 all penalties, to which the "occupier" (a vague definition and one difficult to enforce) was hitherto liable, are now imposed upon the manager.

Chapter IX, supplemental provisions, deals with miscellaneous matters, standard and local time in clause 48, clause 49 brings Government factories under the Act, clause 50 empowers the Local Government to exempt any factory from the act for any length of time, in case of public emergency.

The most notable point in the whole Act, and the one which will evolve most discussion, is the determination to restrict by law the hours of adult male labour. Much, of course, may be said on both sides of such a novel departure. It is certain that no demand for such regulation has been put forward by the mill hand, in fact the measure will probably be very unpopular with the hands, for less work will mean less pay. It is the nature of the Indian labourer to prefer to work in a leisurely manner, with frequent rests, for long hours, rather than to work strenuously for much shorter hours. In jute mills the men who work the longest hours are the weavers, and while it takes two adult male weavers in Bengal to do the work which would be done by one girl in a Dundee factory, they can hardly be said to be overworked. They usually work in sets of four, of whom one at a time absents himself while the other three carry on the work, so that each man in turn is off duty for nearly one-fourth of his nominal working hours.

European precedent is against the new restrictions. In no civilised country, so far as we are aware, have such restrictions been im-

posed. It has been said that Indian workers are not organised, and therefore unable to protect themselves, while in England the textile operatives are united in large, powerful, and wealthy trades unions, of old standing, well able to fight for their own hand. This is a superficial view. The Indian mill hand is far more independent than any Lancashire trades unionist. The English operative is a skilled hand. But he has only one trade. He may strike, but sooner or later he must work at his trade, or starve. The Indian mill hand can turn to many different ways of making a living, if necessary, as coolie, agricultural labourer, etc. He not only can return to his native country, most of the mill labour being imported, but he frequently does so, sometimes absenting himself for as much as three months in the year, while the English operative gets only his annual week at Blackpool, and his Saturday half holiday to watch football. With the rapid increase in the number of mills during the last few years, the demand for labour is immensely in increase of the supply. The Indian mill hand, if he only knew it, is master of the situation.

Still, in spite of the above arguments against interference with the hours of labour, we are glad to see that the Government has decided to take this step. The mill hand does not need to be protected against his employer, but he does need to be protected against himself. And, if the hours of labour are to be restricted, it was surely better to grasp the nettle boldly, and do so directly, rather than try to attain the same end by indirect ways, means to evade which would certainly have been found. We only wish that Government had gone a step further, and fixed a ten hours day twelve hours from start to finish, with a two hours stoppage in the middle, and a half holiday on Saturday. This would have abolished the shift system, and incidentally have solved the labour question, though, undoubtedly, there would have been difficulties during the adjustment of labour to the new hours.

It might with reason, however, be suggested that, instead of limiting the hours of daily labour, a limit per week might be imposed. Such a limit would suit the Bengal jute mills, at least, much better than a daily limit. The hours which the Government propose to fix 5-30 A.M. to 7 P.M. are $13\frac{1}{2}$ hours per day, or 81 hours in a week of six days, with the proviso that no hand shall be employed for more than

twelve hours in one day. If the mills were allowed to run, as at present, from 5 A.M. to 8 P.M., with a limit of 81 hours per week, they would probably prefer to work fifteen hours a day for five days, and only six hours on Saturdays, ensuring a clear rest of 43 hours per week, from closing time on Saturdays to opening on Mondays. Such an enactment would avoid all interference with labour conditions, as to pay, etc., and could be worked without difficulty, even with the provisos that no individual should work over twelve hours a day, and no women or children should be employed during the first half-hour and the last hour of the working day. It would be necessary to provide, in such a case, that no machinery should be started before 5 A.M. or kept going after 8 P.M. on any day.

As regards the appointment of medical inspectors and certifying surgeons, the point which most intimately concerns our readers, or some of them, a beginning has already been made in Bengal. One special whole-time medical inspector, whose chief duty will be the certifying of children, was appointed early in August. His charge covers only about one-third of the mills in the Calcutta group. At least three such inspectors will be required to visit all the mills in this one group alone. A special inspector of septic-tank latrines had been appointed some months previously.

We propose to deal with the certification and employment of children, under the new Act, in another article next month.

SERVICE AT NETLEY

WE have lately received several letters asking us to take up the case of those officers who entered the I.M.S. during the twelve years, between 1890 and 1902, who do not count their service at Netley either for promotion or pension. We published one letter on this subject, the writer of which signed himself "Interim," in the *Indian Medical Gazette* for March 1909.

The subject is one of much importance to all officers of the I.M.S. with over seven years' service, all of whom suffer, more or less, from this loss of service, not, as most of our correspondents seem to think, only those who entered from 1890 to 1902.

It would certainly be a great boon to the service if the Government would let all officers date their commissions, and count their service for pension, from the original dates on which

they entered Netley, and one which would be much appreciated, one, moreover, which would not be very costly.

It is not easy to say how the *Indian Medical Gazette* could help in the matter, beyond giving those aggrieved the opportunity of ventilating their views in its columns. The only way in which action could be taken in the matter would be for every man who is affected by the regulations at present in force to memorialise the Secretary of State on the subject. And there are two things, which any one, who thinks of adopting this plan, should bear in mind, first, to be accurate in his facts, and second, not to use unjustifiably strong language, however righteous his cause may seem to himself.

"Interim" offends against the first maxim when he states that he, and the other men in his position, have to serve four months longer for their pensions than all those officers who preceded or followed them. The difference in the case of the officers above them is only six weeks to two months, not four months.

The writer of another letter, recently received, but not published, offends very seriously against the second maxim, when he speaks of "the injustice under which he is suffering." He is serving on the terms on which he engaged to serve when he first entered the service. Government have not introduced these conditions since he joined. And, however hard the case may seem to himself, not only is it obviously incorrect to speak of injustice, but, what is worse, the use of such inaccurate language only damages the writer's own cause.

When the I.M.S. was thrown open again to competition, after having been closed for four and-a-half years, early in 1865, the officers who entered received their commissions from the date they joined at Netley, and their service for promotion counted from that date. In reckoning their service for pension, however, the period which intervened between the date of leaving Netley, and the date of landing in India is deducted, a period usually between two and three months, though in a few cases it is less.

Officers of the Army Medical Department and the R.A.M.C. used to have their commissions, dated from the day they left Netley. Hence the whole batch of men joining the A.M.D. ranked junior, throughout their service, to their contemporaries at Netley who entered the I.M.S. Naturally enough, this was a source of considerable discontent in the A.M.D., and, after a

long series of protests, they succeeded, not in getting the A M D commissions antedated like those of the I M S, but in having the latter postdated like their own

It may be conceded that the grievance of the seniors, if it can be called a grievance, is much less than that of the men who entered between 1890 and 1902. They count their whole service for promotion, and for the increase of pay which promotion brings with it. It is only for pension that they lose two to three months. It might, however, make a considerable difference to an individual, whether his service for pension was completed on 31st March or on 15th June.

In the first category, those who entered previous to January 1891, there are still about 185 men, of whom about twenty at the top, those who have attained the administrative rank, cannot possibly be affected, for all of them have completed their full pension service, with a good deal to spare. In the second category, those who entered between 31st January 1891 and 26th July 1902 (both inclusive), there were, on 1st January 1909, exactly 350 men, of whom 144 belonged to the senior, and the rest to the junior service.

LEAVE AND FURLOUGH IN THE I M S

A CORRESPONDENT, writing from Burma, complains of the difficulty which medical officers in that province experience in getting leave when due. He states that the average amount of leave which Civil Surgeons in Burma have had is only one year for every $11\frac{1}{2}$ years of service, and that excluding the junior officers, who have not yet earned leave, but who will soon have done so, and will then make the block worse than ever.

In Burma, as in the rest of India, a reserve of 20 per cent is supposed to be available for casualties, leave, etc. The writer says that this does not take into account the leave which men have due when first they enter civil employ, but the same applies to every other province. The cadre in Burma is also small, only some 25 men. But the Punjab and the Central Provinces have cadres no larger.

At present, we believe, Medical Officers in most other provinces have little difficulty in getting leave when they want it. But such a happy state of affairs is by no means always the case. During the last twenty-five years all furlough for Medical Officers has been closed on

no less than four occasions, viz, for the expected war with Russia in 1885, for the Chitral war in 1895, for the Tirah Expedition in 1897, and for the China war in 1900, and as the third and fourth (we think also in the first) of these occasions, men were recalled from furlough.

During the past quarter of a century, the difficulty in getting the leave earned, has been, as it seems to us, the one real grievance under which the I M S has suffered. Throughout this time it has almost always been necessary that men who wanted leave should take it when they could get it, rather than try to get it at the time at which it was most advantageous for them to take it.

Individuals have had their grievances, with more or less justice, as individuals in every service must have. But this difficulty in getting leave has been the one hardship which has affected the whole service. And, as is usually the case, the juniors have suffered more than the seniors.

AUGUST MEETING OF THE MEDICAL SECTION OF THE ASIATIC SOCIETY OF BENGAL

THE presentation by Lieutenant-Colonel G A F Harris, I M S, of 43 volumes of the *British Medical Journal*, a set of the *Indian Annals of Medical Science*, a number of volumes of the *Lancet*, and *Indian Medical Gazette*, etc, was announced, and a unanimous vote of thanks to the donor for this munificent gift was passed.

The Precipitin Test for Human Blood

Major W D Sutherland, I M S, gave a very interesting demonstration of the precipitin test for the origin of a blood stain. He briefly reviewed the subject of the microscopical tests, which had been discarded as untrustworthy, and gave an account of the discovery and elaboration of the present method. By injecting human blood or bloodserum into an animal, such as a rabbit or a fowl, the serum of the treated animal develops the power of forming a 'precipitum' when it is added to human blood serum, but does not give this reaction with the blood of any other animals except monkeys, and not in the same degree of dilution with even monkeys' blood. If the blood stain to be tested is diluted 1,000 times, and within a time limit of twenty minutes a precipitate is formed, this is absolutely diagnostic of human blood. Similarly specific sera can be obtained which will react with only the blood of any particular animal. By making such antisera for the blood of the domestic animals the statement that any particular blood stain is due to the blood of any

alleged species can be verified or disproved. The extreme value of such a test in medico-legal work—in this country especially—is evident. The test was carried out with several blood stains, some from domestic animals. The blood which was known to be human blood alone reacted with the antihuman serum used. The speaker had repeatedly tested blood stains sent to him for examination, the nature of which was known only to the sender, and had been able to pick out those of human origin in every case. At the conclusion of the demonstration the following resolution was proposed by Lieutenant-Colonel Green and seconded by Captain McCay, and carried unanimously: "The Medical Section of the Asiatic Society of Bengal, having witnessed Major Sutherland's demonstration of the precipitin test for human blood, is of opinion that it is a practical test when conducted by an expert, and can give valuable assistance in medico-legal practice. They consider that the time has come for making the test available in medico-legal work in India."

A paper on operations for enlarged prostate was read by Lieutenant-Colonel E. H. Brown, I.M.S., which will be published in full in this Gazette.

The next meeting will be held on November 8th, when Lieutenant-Colonel Drury will open a discussion on "Diseases of the Cardio-Vascular System in India." The Medical Secretary will be glad to receive any papers on this subject.

Current Topics.

PECK MEMORIAL FUND

THIS fund has now been closed. The total receipts amounted to Rs. 1,578-12-6, which has been expended as follows—

	Rs.	A	P
Portrait in oils	1,000	0	0
Brass inscription plate	25	0	0
Painting, postage and sundries	29	15	0
Purchase of a high pressure sterilizer for the Eden Hospital	523	13	6

The oil painting was admirably executed by Mr. A. E. Harris, the well-known Calcutta artist, and when it was unveiled in April last by H. H. the Lieutenant-Governor of Bengal, everyone acknowledged that it was a speaking likeness. Both the painting and the Memorial tablet have been placed in the main corridor of the Eden Hospital, where for many years the late Colonel Peck did such admirable work as Professor of Gynaecology. Photographs of the portrait have also been taken to send home to Mrs. Peck, and the balance of the fund Rs. 523 13-6 has been sent to Colonel Green for the purchase of a high-pressure sterilizer for the Eden Hospital.

In closing the fund the President wishes to thank the two Honorary Secretaries (Captain Holdich Leicester, I.M.S., and Assistant-Surgeon Satis Chandra Das), for their efforts to make the memorial a success and the subscribers for their liberal contributions.

THE DIETETIC DECHLORIDATION CURE IN BRIGHT'S DISEASE *

In a paper read before the last German Congress of Medicine, Dr. Widal, of Paris, emphasizes the necessity in every instance of renal disease for ascertaining the chloride balance—*e.g.*, the excretion compared with the intake of chloride of sodium. There is almost always some hindrance to chloride excretion in a diseased kidney, but this impermeability is relative and not absolute. Then, too, chloride of sodium is not the only substance that is unable to pass through the kidney in renal disease, the urea is also apt to be "held up."

Cases of renal disease may therefore be divided into three groups: (1) One in which the retention bears on the products of nitrogenous metabolism, (2) a second in which the chlorides are retained, and (3) mixed cases in which both nitrogenous products and chlorides are retained.

It is often very difficult to differentiate between the part played in the production of the symptoms by these conditions respectively, but Dr. Widal points out that while in chloride retention the salt passes back into the tissues in order to keep the humours of the body isotonic with the blood serum, urea, when unable to overcome the renal obstacle, remains in the blood until the urea pressure is high enough to force a passage. It follows that chloride of sodium accumulates in the tissues and urea in the blood. This fact enables us to distinguish between the two sets of conditions, because in even well-marked chloride retention there may be no excess of urea in the blood, consequently we have only to ascertain the proportion of urea present in the serum. If this exceeds from 2 to 4 grains to the pint of serum we know that we are dealing with chloride retention only, while if the proportion attains upwards of 8 grains to the pint we have to reckon with nitrogenous retention, and should it reach 20 or 30 grains (which only occurs at the terminal stages of the disease) we must be prepared for the worst.

The prognosis in uræmia is always a matter of grave uncertainty. One patient who is waterlogged, with extreme dyspnoea, vomiting and eclamptic attacks, who, in short, appears to be in great jeopardy, suddenly takes a turn for the better and recovers, while another who is merely suffering from somnolence with loss of appetite

* Abstracted from *The Journal of Practical Dietetics and Bacterio-Therapeutics*, June 1909.

suddenly develops fatal coma. Now, our only guide in such cases is the proportion of urea in the blood serum. However extensive the cedema may be, and however grave the symptoms, if the serum only contains a normal quantity of urea the case is one of chloride retention, and we have only to cut off the chlorides and give diuretics.

Dr. Vidal's investigations show that in many cases milk should be discarded in favour of a diet still poorer in chlorides, and he states that a diet largely composed of meat and other solids hitherto regarded as highly unsuited for renal patients may prove far more beneficial than milk diet, provided that it be free from salt.

The dechlorination cure comprises two indications: (1) To rid the organism of the accumulation of salt and the consequent cedema, and (2) to constitute a dietary the chloride constituent of which is calculated in proportion to the degree of impermeability of the kidneys to salt.

The hydration of the tissues in renal disease takes place in two stages: first, there is the infiltration of the deeper tissues giving rise to cedema that is not appreciable to sight or touch, the existence of which is only revealed by an increasing weight; this is sooner or later followed by the stage of subcutaneous—*i.e.*, visible—cedema.

The first line of treatment in renal cedema is to place the patient on a strictly saltless diet and determine the chloride balance and establish the limits of chloride tolerance. Care must be taken that this limit is not approached in organizing the diet.

Everyone who has had any experience of the dechlorination treatment is aware of the readiness with which, in some instances, the cedema subsides under its influence, but this is not invariably the case. Each patient has his individual formula of chlorination and dechlorination, and this we must seek to ascertain. In some cases dehydration proceeds very slowly, and we must give diuretics to hasten the process.

As soon as dehydration is complete and the weight remains stationary for several days, we may cautiously proceed to ascertain what is the patient's limit of permeability for chloride—*i.e.*, what amount of chloride we may safely give him with his food without retention.

Some patients tolerate the saltless diet readily enough, while others soon discover it to be insupportable. With regard to the latter, Vidal finds that if we allow them 15 or 20 grains of salt on their plate every day even this small quantity enables patients to relish their food after having been deprived of it altogether for a time.

The dechlorinated diet entails no drawbacks in nephritic subjects even when persevered with for long periods of time, since the privation of salt is always relative and not absolute. The organism only parts with very small quantities of its salt, so that a trifling addition suffices to

maintain the balance. Vidal has had under observation patients who have gone on for many months with $\frac{1}{2}$ drachm of salt a day without the supervention of any disturbances that could reasonably be ascribed to privation of salt.

THE LIABILITY TO CARIES OF THE TEETH

GROSSMANN of Zurich in Kossel's *Zeitschrift für physiologische Chemie*, 1908, 55 Bd., p. 455, reports the results obtained from chemical analysis of dog's and human teeth. The dog's teeth are, he finds, much richer in organic material, and in phosphorus and sodium, and contain more water than do human teeth, which contain more lime, potassium and chlorine. The wisdom teeth, which are notoriously liable to become carious, contain the largest amount of lime, and the least amount of organic material. Grossmann believes that the greater resistance of the dog's teeth is due to their higher content of organic material.

THE ACTION OF MORPHINE AND OF CASTOR OIL

MAGNUS gave to dogs and cats food mixed with subnitrate of bismuth, and observed by means of the X-rays the passage of the mass along the intestinal tract. Then he gave morphine subcutaneously to the animals and compared the results. He found that after 0.3 gm. of morphine had been injected the passage of the food through the cardiac end of the stomach was delayed, and that the mass lay for 8 hours in the fundus before it began to pass the pylorus, whose sphincter had remained contracted. He and Cohnheim carried out experiments on a dog that had a duodenal fistula, and found that morphine injections caused the stomach contents to pass more slowly into the intestine, but that they were more fluid when they did pass, so that the action of the morphine was protective to the intestine. Absolute rest of the small intestine was not obtained by means of doses of morphine that caused constipation, but the passage of the contents of the small intestine into the colon was delayed. The movements of the colon were not affected. Tincture of opium has a similar action on the movements of the intestines. On giving 20 cc. of a 10 per cent infusion of senna to cats by means of the stomach tube he found that the movements of the stomach and small intestine were not affected, but that increased movement of the colon occurred. Morphine injections did not prevent this result of the ingestion of senna. The most marked action of castor oil was, he found, the excitement of movements of the small intestines, with defæcation stimuli after the intestinal contents had lain in the colon for some hours. This action could not be controlled by means of morphine. *Pflügers Archiv*, 1908, 122 Bd., pp. 210, 251, 261.

GUNSHOT WOUND—PECULIARITIES

ON 9th March at the meeting of the Leipzig Medical Society Rimmann showed projection-pictures of the case of a young woman who had been shot with a revolver. The fatal wound was in the right temple, but the interesting point about the case was the fact that there was a beautifully stellate wound of the skin in the centre of the forehead. On examination of this wound it was found that the edges of the lacerations were undermined, and that the subcutaneous tissues under them were blackened by the powder, although no blacking of the external surface had occurred. The projectile—a 7 mm calibre bullet—was found lying on the bone mushroomed, so that its hollowed base was like the head of a stud, lying in a button-hole slit in the integuments. The peculiarities of this wound were due to the revolver having been held in contact with the skin, the explosion-gases having thus followed the bullet, been obstructed by it when it became mushroomed, and then taken the direction of least resistance—laterally. In the outer table of the skull 3 fissures were found, the inner table being intact.—*Muenchener Med Woch* No 29 of 1909

THE MEDICAL NEEDS OF AN ARMY IN THE FIELD

AT the "commencement" of the Army Medical School at Washington on 29th May, Professor Roswell Park delivered an address on the Career of the Army Surgeon from which we quote the following passages: "Are the lessons of the South African, the Spanish American and the Russo-Japanese wars to be forgotten, almost before they have been recited?"

For instance, if an adequate medical service is to be built up for war there should be one officer to every 100 of enlisted men. Estimating that an army of at least 400,000 men would be required, were we engaged with a first class Power—and what other would dare to engage with us? this means 4,000 army surgeons. Of these at least one-fourth should be regular and experienced medical officers. There is another feature which we cannot disregard. So long as army regulations require that a man educated in advanced science spend much of his valuable time in acting as book-keeper or clerk, there will be less inducement to enter the service, and it will consequently not attract men of highest proficiency." As the considered opinion of a great American Surgeon, these words will doubtless have effect on the American war department, and may be heeded nearer home.

THE BOMBAY MEDICAL CONGRESS

THE Central Committee of the Bombay Medical Congress have decided to convert the cash proceeds of the undertaking, amounting to between eleven and twelve thousand rupees,

into the nucleus of a Nursing Trust to be known at the "Miss Clarke Memorial Nursing Fund (founded by the Bombay Medical Congress)." The Fund will be held in Trust by the Committee of the Bombay Branch of the Countess of Dufferin's Fund, and the revenue administered by them for furthering the aims of nursing in the Bombay Presidency Proper. Apart from the intrinsic merits of the object sought, the wide popularity of the late Miss Clarke will, it is hoped, induce many of those whose esteem and affection she won by her devotion to the cause of the poor of this country to associate themselves with a scheme which helps to memorialize her name by adding to the foundation and thus increasing its potentiality for good.

THE SCHAUDINN MEDAL

THE Schaudinn Medal for meritorious work in the domain of microbiology has been awarded to Schaudinn's successor at the Hamburg Institute of Tropical Hygiene, Dr Stanislaus Prowazek von Lanow. The judges are at present Blanchard, Celli, Cruz, Ehrlich, Golgi, Grassi, Heider, Heitwig, Ishikawa, Kitasato, Koch, Kopke, Lankester, Laveran, Manson, Metchnikoff, Novy, Nuttall, Paltauf, Ross, Roux, Sehewiakoff, Wilson, and Wladimiroff—truly an international committee. We congratulate Dr Prowazek von Lanow most heartily on this appreciation of his painstaking elucidations of problems of protozoology by men so capable of judging of their merits.

BOMBAY MEDICAL CONGRESS EXHIBITION, 1909

IT is officially notified that the exhibit of Messrs Buirroughs Wellcome & Co., at the Bombay Medical Congress, held in February last, has received the highest award.

THREE DAY AND SEVEN DAY FEVERS IN MALTA

IN the July number of the *Journal of the R A M C*, appears an article by Lieutenant-Colonel J J Geniad entitled Further Notes on Fevers in Malta, in which he deals with unclassified fevers returned as "simple continued fever." He finds that these are most prevalent during the first year's service of soldiers in Malta, and in the barracks nearest the sea, whose occupants bathe more frequently than those of the more distant quarters. In dealing with the types of fever he describes "three-day," "seven-day" and "ten-day" forms, the first constituting from 75 to 85 per cent, and agrees with the descriptions of Doerr. The seven-day type is the next most frequent, and exactly corresponds with the descriptions of the disease in Calcutta, having the "saddle-back" temperature curve of the original description of the disease. He had previously been acquainted with the three-day type in the Punjab, and regards it as identical with that in Malta. Of

dengue he writes "I have never seen a case which could be mistaken for that disease, though possibly in an epidemic of dengue some cases might be so mild as to be mistaken for 'three-day fever'." He goes on to describe "ten-day" fever as more insidious in its onset than seven-day fever, and more closely resembling typhoid in the appearance and condition of the patient, including the presence of rose spots in most cases, but they gave a negative Widal, and no bacillus could be cultivated from the blood, although a coli-form was isolated from the urine on one or two occasions. One case originally classed under this head ultimately gave a reaction for para-typhoid B. He thinks all these fevers may be due to bacilli of the coli group, and that chill is a determining factor. The evidence of Doerr in Europe in three-day fever, and of the Philippine observers in cases clinically resembling seven-day fever, to the effect that the infective agent will pass through a fine porcelain filter, is against this view.

Reviews

Keen's Surgery.—Vols III and IV, Saunders
Price 30s net per Vol (To be completed in five volumes)

To those who are familiar with the first two volumes of this magnificent work no recommendation will be required to induce them to buy the recently issued volumes.

Volume III deals with the surgery of the head, neck, thorax, peritoneum, liver, etc. It opens with an article on the surgery of the head by Harvey Cushing of Baltimore, in which the most advanced views on the subject are ably put forward, for instance, operative interference is advocated in certain cases of intra-cerebral hæmorrhages which have previously been regarded as beyond the range of surgery. Special emphasis is rightly laid on the great importance of an early decompression operation in cases of progressive unlocalised cerebral tumours. The author takes a more sanguine view of the benefit likely to result from operative interference in cases of epilepsy than is usual among other writers.

In the article on the nose one is surprised to find that injection of paraffine is strongly recommended in case of deformity, in spite of the very unpleasant consequences that have been recorded by those who have taken up the treatment. The author insists on the necessity of using solid paraffine injected by a special syringe, the needle being directed towards the tip of the nose and pressure being maintained on the root of the nose by an assistant.

There is an excellent chapter on the surgery of the thorax in which Sauerbach's operating chamber is described this is a cabinet inside

which the body of the patient is placed while the head remains outside, by partial exhaustion of the air in the cabinet the operator who stands inside the cabinet is enabled to carry out extensive operations on the lung without fear of collapse no notice is taken of the recent work of MacEwen which shows that most operations on the lung can safely be carried out without any elaborate contrivance of the kind. The article on peritonitis is of special value, great stress is laid on continuous irrigation of the rectum with normal saline, on the patient's being kept in the Fowler position, and on repeated washing out of the stomach.

The article on the surgery of the stomach is by Mayo Robson, that on the Liver and Gall-bladder by the Mayos, and that on the Pancreas by Moynihan, the mention of these names is sufficient to indicate the quality of the articles.

Volume IV deals with diseases of the intestines, hernia, the genito urinary organs, the eye and ear, and with tropical surgery.

All the contributors to this volume are American surgeons so that the international character of the book is not maintained, but all the articles are by masters of the subjects with which they deal and there is no falling off in the standard maintained in the previous volumes.

The article on hernia by Coley of New York is admirable and the illustrations show each step in the commonly used operations with the greatest clearness. The after treatment does not receive the attention that it deserves. Dr. Abbe's article on the rectum and anus Whitehead's operation for piles is regarded as suitable only for cases with bad prolapse, Allingham's method of excision and ligature being given the preference in the great majority of cases.

Cabot of Boston in dealing with lithotomy dismisses lateral lithotomy rather contemptuously as an antiquated procedure not worthy of a formal description in an up-to-date book. This verdict will hardly be accepted by the surgeons in India who have had most experience of the subject. The description of litholapaxy is excellent, and the illustrations showing the method of holding the lithotrite and evacuator cannot fail to be very helpful to beginners.

Young of Baltimore produces statistics to show that perineal prostatectomy gives better results than Freyer's suprapubic operation, though a full account of the latter method is given in Freyer's own words.

The account of Wyllis Andrews operation for the radical cure of hydrocele will be of interest to surgeons in India who have to deal with large numbers of these cases, the operation can be performed very quickly and it does not seem to be attended by any disadvantages.

"Hydrocele en bissac" is said to be best treated by incision of the scrotal sac with drainage of the intra-abdominal part of the sac. The article on appendicitis is by Murphy of

Chicago, and of course the subject is dealt with from the point of view of the specialist who has all the resources of a modern hospital at his command under these conditions one must unreservedly agree with the teaching that every case of appendicitis should be operated on within thirty-two hours of the onset, but it is doubtful whether the adoption of this rule would be attended with happy results in India, except in the case of patients in one of the large towns. The clear and dogmatic statements regarding the diagnosis of appendicitis and regarding the operative treatment of advanced cases cannot fail to be of the greatest help to the medical man, especially as they apply to cases of the disease as it occurs in the jungle just as much as when it is seen in the most civilized surroundings.

The chapter on tropical surgery is of some value to practitioner in India as it gives a brief account of the most approved procedure in cases of elephantiasis, liver abscess, mycetoma and other conditions which are rarely met with in cold climates.

Taking the work as a whole it naturally is somewhat uneven, but in spite of the great number of the contributors there is a remarkable degree of uniformity. This cannot have been secured without the greatest care on the part of the editor and publisher, and there is little doubt that they will have their reward in a very large sale in all English-speaking countries. To the surgeon who is far removed from centres of activity and progress a book like this must come as a revelation and as an inspiration, and we feel confident that no one will ever regret the money spent in buying these handsome volumes.

Medical Gynæcology—By SAMUEL WYLLIS BANDLER, M.D., adjunct Professor of Diseases of Women New York Post-Graduate Medical School and Hospital, etc., etc. Pp 676 Philadelphia and London W B Saunders Company, 1908

THIS book, as stated by the author in the preface, is written as a guide to the non-operative side of gynæcology. The various topics have been treated from the standpoints of the symptoms, the disease, the bi-manual and microscopical findings, and the general physical and nervous state. As would be expected special attention has been given to the question of treatment. The sections dealing with uterine bleedings, associated nervous conditions of gynæcology, constipation, and gonorrhœa may be specially mentioned as containing a great deal of useful and suggestive matter.

There is no question that a work of this character has been needed for some time past as there is so great a tendency in the modern works on gynæcology to lead the student to believe that there is little but operative treatment likely to do much good in the numerous diseases to which women are specially liable and

the medical and more conservative treatment is but lightly touched on, whereas a study of this work under review will at once make it clear that in many cases excellent results can be obtained without resorting to surgical means.

On the whole, we think this book is likely to prove a useful and suggestive one more especially to the general practitioner as it will enable him to deal with many of his cases in a more satisfactory and beneficial manner without having to resort to operative interference which in so many cases is repugnant to patients.

The book is well printed and amply illustrated.

Adenomyoma of the Uterus—By THOMAS STEPHEN CULLEN, associate Professor of Gynecology in the Johns Hopkins University, etc. Pp xiii+270 Illustrations 68 Philadelphia and London W B Saunders Company, 1908

THIS monograph contains a resumé of the histories, pathological and histological examinations of over ninety cases of adenomyoma of the uterus with numerous observations on this condition.

From a careful consideration of these cases the author comes to the conclusion that the glands in the adenomyoma, in the vast majority of cases at least, originate from the uterine mucosa.

A summary of the leading symptoms will enable at least a provisional diagnosis to be made in most cases, and suitable treatment by supravaginal hysterectomy, the ovaries being left, will result usually in a complete cure as the prognosis appears to be very good.

The work, as would be expected coming from such a source, is very full and complete, and is a most valuable addition to gynæcological literature.

We can most cordially recommend it as one that should be in the possession of every gynæcologist, indeed of every practitioner who has many gynæcological cases in his practice, as the condition is only very briefly treated in most of the works on diseases of women and is one to which attention has only been directed in recent years though it would appear from this work not to be by any means so rare as was formerly supposed.

The type is beautifully clear and the illustrations are unsurpassed.

We heartily congratulate, both the author and the publishers on what is likely to long remain one of the classics of gynæcological literature.

The Body at Work. a Treatise on the Principles of Physiology—By ALEX HILL, M.A., M.D., F.R.C.S. Some time Master of Downing College, Cambridge. With 46 Illustrations. Pp 448 Edward Arnold, London, 1908. Price 16s

VERY few medical subjects lend themselves readily to the production of popular volumes and few popular volumes have been attempted

Oct, 1909]

We must at once admit the very marked success that Dr Hill has succeeded in attaining by the production of the volume under review. Physiology is exceedingly well provided with text-books, in fact, one might go farther and say that there are far too many already, but we know of none in a position to compete with the present volume, when the interests of the amateur of science are considered.

From the point of view of the amateur of science the very best of test-books has many drawbacks having been written chiefly for medical students, who have already passed through years of training in chemistry, physics and biology, these books assume too much for those who have not had training in these subjects. The author in this volume has endeavoured to describe the phenomena of life, and the principal conclusions which have been drawn as to their interdependence and as to their causes, in language which will be understood by persons unacquainted with the sciences on which physiology is based. As the book neither aims at being an introduction to the systematic study of physiology, nor poses as an aid in the preparation for professional examinations the author has treated in some detail the more recondite and more suggestive results of recent research. He has endeavoured to reflect the intrinsic interest of the science apart altogether from its medical applications.

The man whose purpose in studying physiology is to obtain a knowledge of the working of the healthy human body, in order that he may know how to set right any departure from health, would remain an empiric of the most rigid type did he not apply to the elucidation of his problems all conclusions reached from the study of other organisms. There would be no science of human physiology had observations and experiments been limited to man, there would be no science of medicine had not the mode of working of the human body, and the influence of drugs upon it, been inferred from the results of experiments upon animals.

We note the author gives a clear exposition of the principles of vivisection, and as the book is intended for the public, who have been singularly misled as to the nature and methods of vivisection, he takes an early opportunity of insisting that anaesthetics have made all things not only possible, but legitimate. Thanks to anaesthetics, there is no test which may not be applied to a live animal with as much propriety as to a dead one. Anaesthetics abolish the distinction, in its ethical applications, between life and death.

The author speaks very truly when he complains of the term "vivisection." We have always thought it conveys too large a meaning and a really improper meaning. It is a word the real meaning of which has changed with the gradual development of science, and one that to the trained experimenter means a totally

different thing to what it does to the lay mind. A negative term is needed—one that will hold the emotion of pity in check. No one objects to the dissection of dead animals and, likewise, pity is misplaced when devoted to the unconscious subjects of physiological experiments happily for animals, as for man, anaesthetics suspend conscious life, personality and pain.

We have read this charming book* with the greatest interest and heartily congratulate the author on the successful way in which he has overcome many difficulties. It is a volume which we have no doubt will become very popular, as a great proportion of educated men take a great interest in Physiology—the "Science of the Body at Work."

Military Sanitation for Soldiers serving in Hot Climates.—By Major R. J. BLACKHAM, DPH, London, RAMC London and Bombay, 1909. W. Thacker & Co.

IN this little work the author gives the substance by lectures delivered by him to lay audiences at Devonport and Peshawar. On the whole the work fulfils its aims—to teach the soldier how best he may feed, clothe and amuse himself, without running any risk by becoming unfit for duty. The strictures on the way in which the Indian Knight of the Broom is permitted to "pervade" barracks are not a whit too strong. The praises of cheese as a cheap and efficient article of diet should do something to encourage the soldier-readers of this work—may they be many! to spend their spare cash more profitably to themselves than on the tit-bits purveyed by the bazaar *bowarchi*. We trust that the sound advice given as to the conservancy of camps will not be neglected, even though it begins with a singularly misplaced quotation from Deuteronomy. With the author's indiscriminate condemnation of cigarettes we cannot agree, but we would strongly recommend this work to those who have to do with providing sound literature for Soldiers' Institutes and the like.

An Atlas of Dental Extractions, with Notes on the Causes and Relief of Dental Pain.—

By C. E. WALIS, M.R.C.S., L.R.C.P., L.D.S., London, 1909. J. & A. Churchill. Price 3s 6d net.

FROM the illustrations in this book those who lack practical experience may readily learn how to extract the various teeth. We consider that a copy should be on the shelves of every head-quarter's hospital, at least for the instruction of beginners.

The Physiological Standardization of Digitalis.—By C. W. EDMUNDS and W. HALE. Bull. No. 48, Hyg. Lab., U.S. Pub. Health and Mar. Hosp. Serv., Washington, 1909.

IN this, as usual, excellent report, the subject of the standardization by physiological tests of the preparations of digitalis is fully treated, clear details being given of all the work done since

*The book may be obtained from Messrs Longmans, Green & Co., Bombay.

Fagge and Stevenson's experiments in 1865. From the experiments made by the authors in mice, frogs, guinea-pigs and cats, it is of importance to our readers to learn that implicit reliance may be placed on the concentrated tincture of Messrs Burroughs, Wellcome & Co, and the Fluid Extract, U S P, of Messrs Parkes, Davis & Co.

Surgical Anæsthesia — BY H. BELLAMY GARDNER. Illustrated. London, 1909. Baillière, Tindall & Cox. Price 5s net.

THIS work gives full and clear directions for the administration of the various anæsthetics in all possible cases, with—what are just as important—full directions for the preparation of the patient, and his treatment after the anæsthetic's effects have passed off. To the reviewer's knowledge it is not so extensively known in India as it ought to be that the presence of metallic mercury in the "use" bottle of ether, and of slaked lime in the bottle of chloroform makes things much more pleasant for the patient afterwards, the distressing after sickness being practically abolished after chloroform-anæsthesia. On this subject Mr Gardner lays sufficient stress. Taken as a whole his book is to be recommended to all Civil Surgeons.

Appendicitis and other Diseases of the Vermiform Appendix — BY HOWARD A. KELLY, M.D. Pages 502. Illustrations 215 and 3 Lithographic Plates. Price 25s net. J. B. Lippincott Company, Philadelphia and London.

DR KELLY in 1905 published the first edition of this book and then endeavoured to make it a great storehouse of well digested facts relative to the diseases of the appendix, in this he admirably succeeded.

The first edition was, however, bulky, and to meet the wants of the general surgeon, the second edition has been so compiled as to form a more compact résumé of the subject with special attention being paid to the practical side. The book with its 500 odd pages is still sufficiently large, this is, however, in great measure due to the convenient size of the print and the large number of illustrations. The same arrangement of chapters has been followed as in the previous edition. The anatomy, physiology and pathology are first described, then follow etiology, clinical history and diagnosis. No distinction can be drawn to the separate merits of these sections as they are all equally good.

With regard to the leucocyte count the space devoted to this subject has been considerably expanded as compared with the first edition. The author holds that a much better judgment may be formed of the progress of the disease from a differential as compared with an absolute count. He lays special stress upon the relation between the neutrophile and eosinophile count, an increase of the former type of corpuscle with diminution or absence of the latter variety being designated as the septic factor. When the

disease is acute, in the usual bacteriological types of appendicitis, this factor is always present.

The chapter on treatment previous to operation is particularly good, early operation, *i.e.*, within the first few hours and not later than the first twenty-four being recommended as the ideal treatment. The various reasons when this rule should be departed from are discussed, and also when to operate or not as the case may be if the patient is seen after the expiration of the ideal period.

The remaining part of the book consists mainly of a very full description of the operative technique to be employed in the varying conditions which may be found after the abdomen is opened. Chapters dealing with the relation of appendicitis to gynaecology, new growths, specific infections, etc., are also included.

One of the best features of the book are the illustrations which are particularly clear and life-like.

Although the author considers his work to be in the nature of a résumé yet most people would agree that it more nearly approaches a monograph in type. The book may be thoroughly recommended as a clear and masterly exposition of the subject.

Aids to the Analysis of Food and Drugs, Third Edition, p. 249 — BY MOOR & PART. RIDGE. Price 3s 6d net. Messrs Baillière, Tindall & Cox, 1909.

THIS little book belongs to the well-known student's aids, series and contains a wonderful amount of information within a small compass. A great deal of revision has been found necessary since the last edition, so that the present one has been practically re-written. Much exceedingly useful information is given on the analysis of food and drugs, and it will prove of service to those engaged in examination of these materials. The first fifty pages are devoted to a discussion and the analysis of the different kinds of milk at present on the market, a most important subject. We can recommend this "aid" to the attention of those interested and feel confident that they will be able to derive much benefit from its perusal.

Formulaire des specialites pharmaceutiques pour 1909 — PAR LE DR V. GARDETTE. 3e edition. Paris, 1909. J. B. Baillière et fils. Price 3fr.

AS the author of this little work disclaims all responsibility for the dosage given by him against each preparation mentioned as a speciality of this or that pharmacist, and as he has given the formulæ of only some 50 per cent of the various preparations, we cannot recommend this "Formulaire" to our readers.

ANNUAL REPORT

PUNJAB JAILS ADMINISTRATION REPORT

THE number of convicts received in the jails during the year was 17,803 as against 15,748 in 1907. The steady decline

in the figures of convict admissions since 1903 has thus been broken for the first time during the last six years. The high prices prevailing in 1908 may in part have accounted for the rise, though, similar high prices in 1907 did not have a similar effect. A feature of the year is the increase in punishments awarded for the more serious forms of crime. Murders increased by 53 and dacoities by no less than 80. This is of course due to the epidemic of serious crime which occurred in the Central Provinces and not unfortunately to any improvement in the proportion of convictions.

One hundred and forty boys and girl under 16 years of age were admitted to the Delhi Reformatory during the year as against 105 in 1907. This extended use of the Reformatory is satisfactory, but still more might be done as it is observed that the number of juveniles sent to jail rose from 79 to 94. From this it may be inferred that juvenile crime is on the increase, which as the Inspector General observes, is a bad sign of the times. Sir Louis Dane regrets to notice that, in spite of the many occasions on which the attention of Magistrates has been drawn to the impropriety of sentencing juveniles to short terms of imprisonment, such sentences are still awarded. It is hard to understand how the magistracy can fail to understand the impropriety of such sentences. After all that has been said on the subject, it is surprising to notice that no less than 21 juveniles were sentenced to imprisonment for terms varying from 20 days to 24 hours. The Inspector General is requested to furnish Government with the details of such cases with a view to the attention of the Hon'ble Judges being directed to the matter.

I acknowledge with pleasure the good work done by officers generally, and thank them for the loyal support and willing help given to me at all times in the administration of the Jail Department of the Provinces and specially bring to notice for the excellent manner in which they have performed their duties, Capt R. M. Drziel, I.M.S., Capt J. L. Clements, I.M.S., and Lieutenant M. Courtney, I.S.M.D., amongst the upper subordinates who have distinguished themselves as well as Jai Ram Singh, Jai Ram Das and Bharat Ram.

Correspondence

'LEAVE IN THE BURMA MEDICAL SERVICE'

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—In reference to your letter received last month inviting me to bring to your notice my facts as to the block in leave in the I.M.S. in Burma, I may quote the following cases—

"One officer has served for 21 years with only one year's leave. Another has had 1 year 3 months in 21 years. One has 1 year 7 months in 17 years. Two have 2 years in 16. One has 1 year 8 months in 13 years' service. Three have 6 months in 9½ years.

The average is one year's leave in eleven and a half years' service, excluding five men with about 6 years' service who have had no leave and will soon be making the block worse than ever."

The Director General has been memorialised but can only reply that the I.M.S. in Burma is allowed 20 p.c. on leave like the rest of India and he is not prepared to interfere with this arrangement. This is however a most unfair arrangement for a service with a small cadre (there are 26 officers in Burma). It takes no account of the service and leave due to officers on entering, and if owing to illness or any other cause a block in leave occurs, there is very little chance of its ever being relieved.

If, as you say, there is little difficulty about leave in the rest of India, the present block in Burma may easily be relieved by seconding two or three officers for duty in this province.

But we here all feel that the only permanently satisfactory arrangement is to allow leave on the basis of an imperial roster.

If this were done almost all the officers quoted above would have been granted leave nine months ago. The present block which seems yearly to be getting more serious is causing acute dissatisfaction which I am sure you will agree is a bar to good work.

TOUGGAY,
S. SHAN STATIS,
23rd July 1909

Yours, etc
TENASEM

"RESEARCH DEFENCE SOCIETY"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—May I ask any of your readers, European and Native, who have photographs of persons suffering from any of the infective disorders such as Plague, Small pox or Cholera to supply me with copies of the same for my use in lecturing with the lantern slides of the Research Defence Society while I am on furlough?

I wish to make one or two points that could not be so well made by one who had no Indian experience. I am specially anxious to have a photograph of a patient suffering from prolonged Relapsing Fever to show as a lantern slide along with one exhibiting the Spillum in the body of the louse taken from Captain Mackie's paper, which was illustrated with micro photographs. Monkeys were used in his experiments the successful inoculation of which was the link that completed the chain of evidence about the cause of the disease. Our power to attack the louse and prevent his biting the village who is nursing a relative sick of louse fever, instead of waiting till he is ill too and then giving him medicines is one of the best "modern instances" I can think of to show the value of knowledge gained by experiment, the method so much denounced, by the anti vivisectionists who put their faith to the method of observation alone.

Any photograph should be accompanied by a note signed by the owner of the negative giving the Research Defence Society the right to reproduce it as a lantern slide for the purposes of the Society.

I may have more to say of the work of the Society in a later issue.

Let it suffice to remind my professional brethren in India of the uphill fight the society is making, all alone, against the propaganda of numerous societies pledged to put a stop to all research on animals. These have such advantages over this society in the burning zeal of enthusiasts spread all over the country, the leisure the members have to work full time for their cause, and the accumulated legions of over thirty years. It only asks that poor Humanity's cause should be heard as well as that of the beasts, and that the public should have the chance of deciding on evidence. So far judgment has been too apt to go by default for want of counsel.

Applications for membership, which only entails a minimum subscription of five shillings a year, or for associateship, which means but one shilling, should be sent to Stephen Paget, Esq., F.R.C.S., 70, Harley St., London. He is the Honorary Secretary, and the photographs I ask for may either be sent to me or to him.

C/o MESSRS H. S. KING & CO

9, PALL MALL,
LONDON,
10th July 1909

Yours, etc,
J. L. MARJORIBANKS,
MAJOR, I.M.S.

"TRACHOMA ALSO OCCLUSION OF THE PUPIL"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—We are often favored with papers on cataract by our Ophthalmologists. Occasional papers on other subjects might perhaps be of more use to the general practitioner, for example that bug-bear trachoma, its etiology, and treatment. I recently had two European brothers aged four and five years under my care for several months with this disease. It was quite early. The eyes looked red and the fornices of the upper lids were studded with the characteristic minute punctate elevations. What is the latest treatment for such cases as these? Local applications of many kinds were tried without any good result. The boys were taken to England, and the mother wrote after two or three months that the eyes had become quite well. She did not say whether they had been treated or not. In an early case should one advise going to Europe if possible? In the case of the two boys there was no evidence in favour of contagion. This is a comparatively cool climate, and free from glare, but there is a good deal of dust in the dry weather.

Recently I was consulted about an European Nurse whose eyes were in the condition described above. What was one's duty under the circumstances? Should one have said that the nurse was unfit to have charge of children?

Among other cases that not infrequently come to the general practitioner are those of occlusion of both pupils, the result of neglected trachoma. Is it feasible and desirable to do iridectomy in these cases? or does the opacity generally extend behind the iris all over the surface of the lens? I have performed iridectomy with some difficulty in a good many of these practically blind people, seldom with much advantage and occasionally with results disastrous to the eye. I wish to draw attention to this subject as the text books contain very little information concerning it.

MAYNIO,
25th July 1909

I am, Sir, &c
C. DUER, MAJOR, I.M.S.

CREOSOTE IN HIGH TEMPERATURES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—Referring to an article in the current issue of the Indian Medical Gazette, by Lieutenant Barker, I.M.S., relative to the action of creosote in reducing high temperatures, I desire to say that I have frequently used this drug in Malaria, both in hospital and private practice where the temperatures

had risen above 105° F. My procedure was to rub in 20 minims in one or both axillæ, at the same time administering by the mouth 5 minims of the drug floated on a dose of diaphoretic mixture. In almost every case diaphoresis set in within half an hour followed by relief of the distressing headache. If necessary the treatment was repeated after a lapse of three or four hours. No unpleasant effects followed. The only drawback I experienced was the slight amount of vesication produced at the seat of friction. I am indebted for this mode of treatment *tout a fait* to Lieutenant Colonel R A M C., then in command of the Station Hospital at which I was doing duty.

FORT LAHORE,
18th August 1909

Yours, etc.,
HENRY J FORDHAM,
Assistant Surgeon

"ABDOMEN TORN OPEN RECOVERY"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I shall feel highly obliged if you publish in your next issue the following case in your widely read journal.

A report reached to me on the midnight of the 24th May, 1907, "that a barber woman inhabitant of Amarpur—a village 6 miles from my dispensary—had been injured by a bullock while returning in the evening from her fields and that her abdomen was torn and she was lying unconscious." I hurriedly proceeded to the place taking with me necessary sutures, instruments and some stimulants etc. On examination I found that she had very big wound running transversely from an inch and a half above the right iliac fossa extending as far as umbilical region. Through this wound a large portion of intestines with a small knuckle of omentum was protruding on which the patient's friends had applied some powders and covered with rags. The patient was in moribund state when first seen, but no signs of any ruptured viscus. The protruded portion was inflamed and dirty, this was cleaned properly with warm weak antiseptic lotion, and by gentle uniform pressure the intestines together with the omentum returned into the abdomen, care being taken not to force them between the peritoneum and fascia transversalis. The wound was closed by single interrupted silk sutures and tied by reef knots and dressings applied. The hæmorrhage in proportion to the size of the wound was not very great although controlled with difficulty.

In the morning of the 25th she was brought in the hospital in a *doolie* and kept as an indoor patient. She was discharged as cured after three weeks.

In publishing the above I wish to say that these big wounds healed without suppuration, and although the intestines were dirty and inflamed, yet there was not the slightest symptom of peritonitis, etc., throughout the period.

BAGLI,
23th July 1909

Yours sincerely
RAMNATH VARMA,
Hospital Assistant,
In charge Bagli Dispensary,
MALWA, C I

"THE EXTRACTION OF THE LENS IN ITS CAPSULE (SMITH'S OPERATION) BY DIVISION OF THE SUSPENSORY LIGAMENT"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I was much interested in Captain Nesfield's article under the above title in the July number of the *Indian Medical Gazette* just received.

My experience has been much the same as his, namely—that with the amount of pressure I was prepared to apply, I was able to deliver the lens in its capsule successfully in only about one case in ten. I was led in the same way to consider some modification of Smith's operation that would get over the resistance of the suspensory ligament, and it occurred to me to do this operation, which has now been described by Captain Nesfield.

I did not however think it would be necessary to incise the ligament at more than one spot. I was of opinion that once released at the upper part, it would readily give way else where, and I planned to do the operation in this way, and discussed it with my Hospital Assistant and one or two other persons. This was a year and a half ago, I was unfortunately unable to try the operation I had planned, as I took leave from Meshed, almost immediately after.

I was tempted to think that perhaps the suspensory ligament of the Persian was tougher than that of the native of India, but Captain Nesfield's experience controverts this. I think we are indebted to him for putting this operation to the test and drawing attention to it. If it enables the Surgeon to remove the lens in its capsule without such risk of vitreous prolapse as is inseparable from Smith's operation it is a great advance and should prove particularly acceptable to young operators.

I hope that some of our experienced operators in India will give us the benefit of their views on this procedure.

I am still of opinion that such an extensive sweep round the ligament as Captain Nesfield describes is hardly likely to be necessary. In at least a good many cases, releasing it at one point would probably permit the easy delivery of the lens and capsule entire.

DUNS N B,
5th August 1909

Yours faithfully
W ROTHNEY BATFYE
MS (LOND), F.R.C.S.,
CAPTAIN, I.M.S.

A CASE OF PARTIAL PLACENTA PRÆVIA WITH ARM PRESENTATION

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—I have to request you to publish the following notes of a delivery case, which will be found interesting.

Gouri Gundoo—a multipara woman aged about 35 years. It is said that although this was her tenth delivery and there was no history of any trouble with any of her previous deliveries she had a feeling for some time that she would have a difficult labour. She had reached her full time of pregnancy.

The labour commenced in the evening. At first everything seemed to be going alright. The pains grew in intensity as time passed on and the membranes ruptured after three or four hours from the commencement of labour. After the escape of the Liquor Amnii a sudden and severe hæmorrhage set in, the blood gushing out in large quantities at every contraction of the uterus. This continued for two or three hours without any progress of labour. The severe bleeding was already producing serious symptoms. The woman felt giddy. She had thrust cramps in lower extremities and was profusely perspiring. She was no longer able to sit the usual posture adopted by Indian women during labour—the pains stopped completely and the woman lay in a pool of blood quite exhausted and answering only loud calls. At this stage I was sent for. On seeing the woman, I found her pulse very weak and all the symptoms present of a severe hæmorrhage. P V Examination revealed the following things. The elbow was presenting. The os was dilated to its full degree and the placental end of the cord with a portion of detached placenta was distinctly felt at the upper part of the cervix. It was evidently a case of arm presentation with a partial placenta prævia. When the membranes were ruptured and the pressure of the Liquor Amnii removed, the placenta attached to the lower portion of the uterus was detached piece by piece at every further contraction of the uterus, thus causing hæmorrhage. This process of separation and consequent bleeding was stopped when the uterus no longer contracted and when all the possible detachable portion of the placenta was separated. There is nothing much interesting in the subsequent history of the case. Version was performed under chloroform without much difficulty. As was expected the child was asphyxiated, and, when on delivery, although the heart beats were by no means feeble, all the ordinary methods of stimulating respiration failed and artificial respiration had to be resorted to for about 20 minutes before the child began to breathe regularly.

The after course of delivery was normal and both the mother and child are doing well.

ICHALKARUJI

V N DESAI, L M & S

SPECIAL ARTICLE

ON SOME OLD EIGHTEENTH CENTURY LISTS OF THE I M S

BY D G CRAWFORD, M B, I M S,

Civil Surgeon, Hooghly

II — MADRAS

(Continued from page 358)

The Madras Medical Board like, that of Bengal, was established in 1786, by a General Order, dated 8th July, 1786. This General Order also includes regulations for the administration of the Medical Department, and runs to 17 paragraphs, of which the first three are quoted below.

Extract from the *Military General Orders*, Vol VI (1786), pp 32—39

G O Fort St George, 8th July 1786

"The Honorable President and Council are pleased to publish the following rules, and orders from the Court of Directors for the Medical Department, and to direct that the strictest attention be paid to them, by all Paymasters, and others concerned therein

"1st—With a view to give every degree of encouragement to men of professional abilities and integrity to prosecute the Medical Line in our Service in India, we hereby direct that at Bengal and Madras there shall be a Physician General as Director of the Hospitals with a salary of £2,500 per annum and a Chief Surgeon with a salary of £2,000 per annum and the Head Surgeon of every Hospital where 8,000 men may be stationed in Peace, or War, shall have a salary of £1,500 and the Head Surgeons of all the other General Hospitals are to receive each £1,000 per annum. That all Surgeons to Regiments shall have the Pay and Emoluments of a Captain of Infantry upon their Establishment—Hospital Mates the Pay, and Emoluments of a Lieutenant of Infantry upon their establishments, and Regimental Mates the Pay, and Emoluments of Ensigns of Infantry upon their Establishments. At the Presidency of Bombay the Physician General as Director is to receive a salary of £1,500 per annum, one Hospital Surgeon with a salary of £800 per annum. The Surgeons to Regiments are to receive the Pay, and Emoluments of Captain—Hospital Mates are to receive the Pay, and Emoluments of Lieutenant, and Regimental Mates are to receive the Pay and Emoluments of Ensigns of the Bombay Establishment

"2nd—That the Governor and Council shall appoint a Hospital Board which is to consist of the Director, Chief Surgeon, and Surgeon of the Hospital established at Head Quarters, for the purpose of directing the necessary Regulations, and Arrangements for all the Hospitals of the Presidency

"3rd—That the Members of the Hospital Board shall recommend to the Governor, and Council the most able and deserving officers to direct, and superintend the duties at each Hospital and are to be responsible for the conduct of those who may be appointed in consequence of their recommendations, when a vacancy of Surgeon at the Head of any of the Hospitals shall take place the Hospital Board will recommend to the Governor, and Council, the most deserving Regimental Surgeon for the succession—the most deserving Hospital mate to succeed the Regimental Surgeon, and the most deserving Regimental mate to succeed the Hospital mate, but although the most ample encouragement is hereby given to merit, yet it must also be understood that seniority, and equal merits are to have the first claims to Promotion"

* * * * *

It seems strange that the Administrative Medical Officers of Bombay were paid at so very much lower a rate than those of Bengal and Madras though of course the Bombay service was always much the smallest of the three in numbers

The pay granted to the Administrative Officers in Bengal and Madras seems very high, to our modern ideas. The rupee was then, of course, worth nearly double what it is now, about half a crown, instead of one and four pence £2,500 a year, at 2s 6d to the rupee, works out at only Rs 1,650 per month, whereas at 1s 4d to the rupee it would come to Rs 3,125. The present pay of the Director-General is Rs 3,000 per month. But we must remember that the purchasing power of money, both in sterling in England, and in rupees in India, was far greater than that it is now, in India, at least, fully

double. Moreover, the members of the Medical Board were not then confined to their administrative duties, but had professional duties as well, and also large private practices in the Presidency towns.

A Hospital Committee, which was practically the Medical Board under another name, had been more or less formally constituted in Madras, earlier in the same year, 1786. The Madras Press Lists of Ancient Documents for that year contain a minute, dated 1st January 1786, by Sir John Dalling, in the better regulation and management of the Medical Department, and also a minute by Mr Daniell, vindicating the Company's Surgeons. (1) On 17th January the adoption of Sir John Dalling's plan is noted, and a General Order issued on it, (2) and soon after are entered a letter to the Committee of Surgeons, forwarding the new scheme for the organization of the Medical Department, and a letter to the Surgeon-General, informing him that Messrs Lucas and Hoisman would form with him the committee appointed. (3) Surgeon-General Anderson was the senior officer in the Madras Medical Service, Lucas stood next to him, Hoisman was a King's officer, Surgeon of the 74th Highlanders. Soon after another senior Company's Surgeon, Arthur Sinclair, protested against Hoisman's appointment. (4) On 7th February the Committee of Surgeons reported on the new scheme, (5) and on 6th May it is stated that the new scheme has reference only to the Company's Surgeons, and does not extend to the King's regiments. (6)

On 14th October is entered a Military Despatch to Court, which reports the establishment of the Hospital Board, consisting of Dr James Anderson, Physician-General and first member, Mr Colley Lucas, Chief Surgeon and second member, Mr Thomas Davis, Head Surgeon of the Hospital, and third member. (7) Lucas claimed to be first member, without success. Davis died on 23rd April 1788, and the Madras Government appointed Surgeon William Duffin to succeed him as third member. He held the appointment for nearly two years, when he was superseded by orders from the Court of Directors at home, to remove him and appoint William Raine to the place vacated by the death of Davis. Duffin accordingly had to revert, and retired in 1792. (8)

The appointment of Head Surgeon to a Hospital carried with it certain undefined, and apparently rather vague, administrative medical powers over the junior medical officers in the neighbouring garrisons. Early in the nineteenth

(1) Madras Press Lists, No 1 of 1786, Misc Consultations, Vol CXI

(2) *Ibid*, No 130

(3) *Ibid*, No 243

(4) *Ibid*, No 290

(5) *Ibid*, No 312

(6) *Ibid*, No 933, Military Consultations, Vol CXii

(7) *Ibid*, No 1977 of 14th October 1786

(8) In a Military Despatch from England, dated 6th May 1793, permission was given to William Duffin to return to India, but apparently he did not return.

century the Head Surgeons became Superintending Surgeons, purely administrative officers, no longer having direct charge of the large garrison hospitals (1) The title of this rank has been frequently changed In 1860 it became Deputy Inspector-General, in 1873 Deputy Surgeon-General, in 1891 Surgeon-Colonel, in 1898 Colonel

The third or junior member of the Medical Board, both at Madras and Bengal, held a somewhat anomalous double rank, being Head Surgeon of the General Hospital at the Presidency, and in virtue of that appointment third member of the Medical Board This continued for ten years, until the members of the Board were reduced from three to two, in 1796, as ordered in a letter from Court, dated 8th January 1796 For nearly ten years the Board continued to consist of two members only, until it was again raised to three in 1805 (2)

At first this Board was called the Hospital Board, which is the title used in the orders establishing it, both in Bengal and Madras Gradually the title "Medical Board" came into use, and for several years the two names were used indiscriminately, the former title of Hospital Board by degrees dropping out of use, towards the close of the eighteenth century

On 19th March 1794 orders were passed by the Government of Madras, that the members of the Medical Board should, by inspection, personally superintend all hospitals on "the Coast" The Board, however, appear to have successfully evaded this duty, by passing on the inspection to the Head Surgeons On 22nd April 1794 the Board received reports from the Head Surgeons at Vellore, Trichinopoly, and Ellore, stating that the hospitals under them were in a satisfactory condition Raine, the Head Surgeon at Madras, and third member of the Board, managed to postpone his inspections till the next year

Commissions were granted to Surgeons and Assistant-Surgeons in the Madras Medical Service by an order, dated 1st May 1787, a year earlier than the grant of commissions in Bengal Previous to that date Medical Officers, or at any rate most of them, had been appointed and had served on warrants only, and were not "Commissioned" Officers

In 1794 the Madras Assistant-Surgeons of the year 1781, most of whom had by that time reached the grade of Surgeon, submitted a memorial about their rank But there appears to have been much less controversy on this subject in Madras than in Bengal

We may conclude by giving a few short notes on some of the officers whose names appear in this list of 1793 Three of them, James Anderson, William Roxburgh, and Whitelaw

Ainslie, are commemorated in the *Dictionary of National Biography*

James Anderson was born in 1737, and entered the service of the Madras Government as Assistant Surgeon in 1762(3) He served at the siege of Manila in 1763 On 20th February 1767 he put forward a claim to be Senior Surgeon of the Madras Army, but in the following month orders were passed that he should rank next to Lucas On 18th November 1771, while he was stationed at Vellore, he made a representation that he had been superseded by the appointment of Samuel Scott as Surgeon at Madras(4) He was appointed to succeed Scott in that appointment, on the death of the latter, on 27th April 1772, and spent the remaining 37 years of his life at Madras On 27th November 1780 he was appointed Surgeon-Major, on a salary of 100 pagodas(5) a month, and on 16th October 1781 Surgeon General, *vice* Pasley(6) deceased He administered the Madras Medical Service up till 1786, when the Medical Board was appointed with Anderson as senior member and Physician-General Among his other appointments, he held that of Superintendent of the Botanical Gardens at Madras He introduced into India the cultivation of cochineal, and partly also sugarcane, mulberries for silk, and cotton He also took a prominent part in the introduction of vaccination in India He died at Madras on 5th August 1809

Colley Lyons Lucas was born in 1730 He was appointed from England as Surgeon to H M's troops under General Duple, and Surgeon to H M's hospitals in India, on 17th August 1762 From 31st January 1764 he accepted service under the Company He was appointed Surgeon at Vellore on 11th February 1771, Surgeon-Major on 14th January 1779, and Chief Surgeon and second member of the Medical Board, when it was formed in 1786 The question of seniority between him and Anderson for long formed a subject of constant dispute Lucas' claim to be the senior was apparently based on his service as Surgeon to the King's troops in Madras, before he entered the Company's service The point was given at first in favour of Lucas, but finally Anderson became the senior when he succeeded Pasley as Surgeon-General Lucas served in the Northern Circars in 1766-67, in the Second Mysore War, including the siege of Vellore, in 1779-82, and in the Third Mysore

(3) One Assistant Surgeon Anderson was appointed to the Negrais on 30th October 1753, and subsequently to Vizagapatam on 5th October 1756 This can hardly have been James Anderson, who surely cannot have been serving as a Surgeon at the age of sixteen

(4) Samuel Scott, appointed 29th March 1768 died at Madras, 20th April 1772

(5) One *pagoda* was worth 42 *fanams*, or three and a half *rupees*

(6) Gilbert Pasley, second son of James Pasley of Craig, Dumfriesshire, came out to India as a Lieutenant Fireworker of Artillery, was appointed Surgeon in 1756, Surgeon General on 25th March 1780, and died at Madras on 23rd September 1781

(1) The title of Superintending Surgeon first appears in the *East India Register* in 1803, in the Madras and Bombay Services in 1809 in Bengal

(2) The Bengal order to this effect is contained in Calcutta G O of 31st July 1805 I have not seen the Madras order, but the Bengal order was issued under orders from the Court of Directors, applicable to the whole of India

War of 1790-91 as Principal Medical Officer, with the rank of Surgeon-General. He died at Madras on 25th March 1797.

William Raine was appointed an Assistant Surgeon on 23rd February 1764. He became Head Surgeon, after the death of Thomas Davis, on 30th April 1788, and two years later became third member of the Medical Board, when Duffin was reduced from that position. On 14th February 1794, Alexander Anderson, one of the Presidency Surgeons at Madras, brought against Raine certain grave charges of neglect of duty. Raine requested a trial by Court-martial, and on 21st February was placed under arrest. I have not seen any record of the result, but, as he was not removed from his position, presumably he was acquitted. In 1796 Raine lost his seat at the Medical Board, when it was reduced to two members, but continued to be Head Surgeon of the General Hospital at the Presidency. He again succeeded to the Medical Board in the following year, when Lucas died. He went on furlough in 1800, and died on board the *Asia*, on his passage home, on 7th July 1800. He was succeeded by Terence Gabagan.

Marwell Thomson(1) was appointed Assistant Surgeon on 1st December 1779, and became Surgeon on 1st November 1787. On 26th December 1793 a Court of Enquiry held at Ellore on his conduct, as Surgeon of the 4th Battalion, European Infantry, recommended that he should be tried by Court-martial for "gross neglect of duty and inattention to the sick of the hospital under his care." The Court-martial sentenced him to be suspended from pay and allowances for a term of six months. The Medical Board, on 18th March 1794, considered him quite unfit for the position he held, reported his conduct to the Court of Directors, and appointed another Surgeon to his regiment, the 4th European Infantry. On 31st July 1795 it was ordered that Mr Thomson should be employed in no public capacity until the pleasure of the Court of Directors was known. On 4th September 1795 orders were issued, received from the Court, that he should be suspended from pay and allowances for a further term of two years, in addition to the six months suspension ordered by the Court-martial. One would think that a record of this kind would have been sufficient to damn any man's future career. But Thomson was promoted to Head Surgeon in 1800, only five years afterwards, and held that rank till his death, which took place at Vepery on 23rd May 1807.

William Roxburgh was born at Craigie, in Ayrshire, on 3rd June 1851, studied at Edinburgh University, and entered the Madras service as Assistant Surgeon on 27th May 1776, becoming Surgeon only 4½ years later, on 27th November 1780. In March 1796, three years

after his appointment to Calcutta he claimed the pay of Head Surgeon in the Madras Service. This claim was founded on the fact that several of his juniors, Adderton, Richardson, and Watson, had reached that rank, but was rejected for the obvious reason that the pay followed the appointment, and that the Superintendent of the Calcutta Botanical Gardens could not possibly at the same time be Head Surgeon of a General Hospital in Madras. Throughout his service he was employed entirely, or almost entirely, on botanical work, being for many years Superintendent of the Company's pepper plantations. From 24th March 1789 he was appointed to succeed Dr Russell(2) as Botanist and Naturalist to the Madras Government. He became M.D. of Marischal College, Aberdeen, and F.R.C.P. Edinburgh, in 1790. In 1793 he was appointed to succeed Colonel Kyd, the founder and first Superintendent of the Botanical Gardens in Calcutta. He went on furlough in 1813, and died in Edinburgh on 18th February 1815. His chief work is the *Flora Indica*, edited by Carey, with additions by Wallich.

Henry Harris was born in 1759, became M.D., Edinburgh, in 1780, and entered as Assistant Surgeon on 4th July 1783, becoming Surgeon on 14th January 1791, Superintending Surgeon on 22nd September 1801, and member of the Medical Board on 24th March 1807. He died at Madras on 10th August 1822. He was a noted linguist. On 21st August 1786, three years after his arrival, he passed an examination, and received a reward of 500 pagodas for proficiency in the Persian language. He then compiled a Persian dictionary, which was published at Madras in 1790, the Government paying him an allowance of 50 pagodas a month, in 1787-1789, towards the expenses of publication. He served as Superintending Surgeon at the capture of the Island of Bourbon or Réunion in 1810, and was mentioned in despatches in the *London Gazette* of 25th October 1810, being the first medical officer ever to receive that honour.

Whitelaw Arnshe entered as Assistant Surgeon on 17th June 1788, became Surgeon on 17th October 1794, and Superintending Surgeon in 1810. He retired on 28th February 1815, and was knighted on 10th June 1835. The date of his death is unknown. He was a voluminous writer, chiefly on Materia Medica. His chief works are "*Materia Medica of Hindostan*," quarto, Madras, 1813, an enlarged edition called "*Materia Indica*," 2 vols., octavo, London, 1826,

(2) Patrick Russell, born 6th February 1727, Physician to the East India Company's Factory at Aleppo, 1753-1771. Came to Madras in 1781. Appointed Surgeon Naturalist, vice König, deceased, from 4th November 1785. Resigned 26th February 1789, when he recommended Roxburgh as his successor, died in London, 2nd July 1805. He took the degree of M.D. at King's College, Aberdeen, in 1753, and became F.R.S. in 1777. He was the author of a "*Treatise on the Plague*," 2 vols., quarto, London 1791, and of "*Poisonous Snakes of the Coromandel Coast*," quarto, Madras, 1787, enlarged edition in four volumes, London, 1796-1809. His name appears in the *Dictionary of National Biography*.

(1) The name is spelt Thompson and Thomson indiscriminately.

"Observations on Cholera," London, octavo, 1825, and "Clemenza, or the Tuscan Orphan, a tragic drama," Bath, octavo, 1822

Thomas Phippard had previously served as a Surgeon in the Royal Navy

Valentine Conolly was for some time Secretary to the Medical Board. He was the father of the well-known traveller, Captain Arthur Conolly, murdered, along with Colonel Stoddart, at Bokhara in 1842. Both were beheaded by order of the Khan of Bokhara (1)

Robert Galloway. In Seton Karr's *Selections from the Calcutta Gazettes*, Volume II, pages 23-24, is quoted a letter from the Court of Directors dated 2nd December 1789, ordering a large number of deserters from Indrimen to be apprehended and sent back to Europe at once. Among them are eleven medical officers including—

Robert Galloway, Surgeon's Mate of the *Barwell*, run at Madras, 19th June 1788

David Halibuton, Surgeon's Mate of the *Manship*, run at Madras, 7th February 1789

John King, Surgeon of the *General Coote*, left sick at Madras, 20th August 1788

John McArthur, Surgeon of the *Airly Castle*, left sick at Madras, 28th January 1789

These four all were appointed Assistant Surgeons in the Madras Service, Galloway only a few days after his supposed desertion

James Barter came to India as Surgeon's Mate of 23rd Light Dragoons, and was appointed an Assistant Surgeon in the Company's service on 14th April 1783, and apparently held the King's and the Company's commissions simultaneously for some years (2), finally rejoining the 23rd Dragoons, and being afterwards re-appointed to the Company's service

John Casterade, in an application to the Madras Government for an appointment, on 21st July 1789, states that he had formerly been a Surgeon in the service of Tippu Sultan

Ephsaim Morton, in the order appointing him, in Madras Press Lists of 1st October 1790, is said to have been in American

William Betty was cashiered on 6th October 1803, for having killed in a duel, on 7th September 1802(3) at Amboyna, Lieutenant-Colonel Robert Hamilton, of the Bengal Army. He was subsequently reinstated in the service from 7th March 1805

Errata, in Madras Army List of 1793, published in I M G of September, 1909

Assistant-Surgeon George Anderson Died 4th August 1870, should be 1810

(1) Conolly also organised, built, and was the first Superintendent of the Lunatic Asylum at Madras, established in 1793

(2) William Twining, the famous Calcutta Physician, held a commission in the King's and the Company's services simultaneously for six years. He entered the Army Medical Department in 1810 served in the Peninsula and at Waterloo, entered the Bengal Medical Service on 12th August 1824, but retained his A M D commission up till 1830

(3) It looks as if there were a mistake of a year in one of these dates, both taken from Dodwell and Miles, 1802 is the correct date for the duel.

Assistant-Surgeon W Peyton Died, 10th October 1840, should be 10th October 1848

Assistant-Surgeon W Betty Retired 7th March 1805, should be Restored 7th March 1805

Service Notes

RETIREMENTS

LIEUTENANT COLONEL FRANCIS FREDERICK PERRY, Bengal Medical Service, retired on 14th June 1909, with an extra compensation pension. He was born on 26th December 1854, educated at University College, London, and Vienna, took the diplomas of M R C S and L R C P, London, in 1876, and subsequently that of F R C S, England, in 1887, and entered the I M S, passing first, on 31st March 1879. He became Surgeon Major on 31st March 1891, Lieutenant Colonel on 31st March 1899, and was placed on the selected list on 29th March 1905. On 9th November 1901 he was appointed Honorary Surgeon to the Viceroy, and reappointed on 18th November 1905, being the senior on the list by over two years. For nearly twenty years he had been Professor of Surgery in the Lahore Medical College, and, since the promotion of Colonel S H Browne in April 1903, had also filled the office of Principal. He also acted as Professor of Ophthalmic Surgery in Calcutta for six months in 1889, but had been on furlough for fifteen months prior to his retirement. He received the C I E on 26th June 1908. The Army List assigns him no war service.

LIEUTENANT COLONEL STEPHEN LITTLE, of the Bengal Medical Service, retired on 22nd June 1909 with an extra compensation pension. He was born on 8th January 1857, educated at Queen's College, Belfast, and at Barts, and took the degrees of M D (with honours) and M Ch of the Royal University, Ireland, in 1878, subsequently taking the diploma of M R C P, London, in 1888. He entered the I M S on 31st March 1879, two places below Lieutenant-Colonel Perry, became Surgeon Major on 31st March 1891, Lieutenant Colonel on 31st March 1899, and was placed on the selected list on 30th May 1905. He was one of the eight young officers of the Bengal Medical Service who were deputed to Egypt in 1883, for service in the great cholera epidemic of that year. Soon after his return he was appointed Medical Officer of the North Western Railway, which then extended only from Lahore to Peshawar (the rest of the system was then the Sind, Punjab and Delhi railway). In 1885 he entered civil employment in Bengal, but in less than a year reverted to the Punjab, where he spent the remainder of his service. He had been on furlough since April 1907. He served in the Afghan war of 1879-80, and took part in the operations in the Hissarak district, receiving the medal for that campaign, and also on the N W Frontier of India, in the Mahsud Waziri expedition of 1881.

THE following orders by the Secretary of State for India are published for information—

I now authorise the issue of the orders regarding subscriptions to the Ind Family Pension Fund. Surgeons General should be allowed to subscribe in Class 1, as hitherto, but for other ranks of the Indian Medical Service the classification should be as follows—

Class 2—Officers of 20 years' service

Class 3—Officers of 12 years' service

Class 4—Officers of 6 years' service

Class 5—Officers of less than 6 years' service

Provided that no existing subscriber is reduced to a lower class than that in which he now subscribes

"OFFICERS on furlough or other leave who wish to have part of it converted into study leave should address the Under Secretary of State, India Office, and should attach a statement showing how they propose to spend the study leave. Similar officers, on furlough or other leave, who desire to have it extended for purposes of study should address the Under Secretary of State, but in addition to the statement of the proposed study, they must support their applications with documentary evidence of their having obtained the approval of the authorities concerned in India to their applying for an extension on leave.

UNDER the provisions of the Civil Service Regulations, privilege leave to the extent due, combined with furlough so

as to make up a total period of one year and three months, is granted to Major T Stodart, I M S, Civil Surgeon, Akyab, with effect from the date on which he may avail himself of the privilege leave

MAJOR C DUER M B, F R C S, I M S, Civil Surgeon, Maymyo, was appointed to officiate as a First Class Civil Surgeon, in place of Lieutenant Colonel T W Stewart, M B, I M S, on leave, with effect from the 28th November 1908

CAPTAIN C F WEINMAN, I M S, Officiating Civil Surgeon, Midnapore, is allowed combined leave for one year, viz, privilege leave for three months and furlough for the remaining period, with effect from the 7th July 1909

CAPTAIN M F REANEY I M S, whose services have been placed at the disposal of this Administration by the Government of Eastern Bengal and Assam, Judicial and General Department, is appointed to officiate as Civil Surgeon and is posted to the Wardha District

LIEUTENANT COLONEL F J DRURY, M B, I M S, Officiating Professor of Medicine, Medical College Calcutta, and Second Physician to the College Hospital is appointed to officiate as Principal of that College and First Physician to the College Hospital, while continuing to officiate as Professor of Medicine in the College during the deputation of Lieutenant Colonel G F A Harris, M D, F R C P, I M S, as Inspector General of Civil Hospitals, United Provinces, or until further orders

LIEUTENANT COLONEL J T CALVERT, M B, I M S Civil Surgeon, Darjeeling, is appointed to officiate as Professor of Materia Medica, Medical College, Calcutta, during the deputation of Lieutenant Colonel G F A Harris, M D, F R C P, I M S as Inspector General of Civil Hospitals, United Provinces, or until further orders and as Second Physician to the College Hospital, during the deputation of Lieutenant Colonel F J Drury, M B, I M S, as Principal of that College and First Physician to the College Hospital, or until further orders

THE services of Major W W Clemesha, M D, I M S, are replaced at the disposal of the Government of Bengal

CAPTAIN O ST JOHN MOSES, I M S, Officiating Civil Surgeon, Midnapore, is appointed to act as Resident Physician, Medical College Hospital, Calcutta, during the absence, on leave, of Captain W V Coppinger, I M S, or until further orders

CAPTAIN W J POWELL, I M S, Officiating Superintendent of the Central Jail, Midnapore, is appointed temporarily to act as Civil Surgeon of that district in addition to his own duties

THE services of Lieutenant Colonel F R Ozzard, I M S, are replaced at the disposal of the Government of India in the Home Department, with effect from the date on which he may be relieved of his duties as Officiating Deputy Sanitary Commissioner, Bengal and Orissa Circle

CAPTAIN A S M PEEBLES, I M S made over charge of the duties of Superintendent, Delhi Jail to Lieutenant Colonel D M Davidson, I M S, on the forenoon of the 19th July 1909

LIEUTENANT E S BAILLIE, I S M D, Civil Surgeon, Gujranwala, assumed charge of the duties of District Plague Medical Officer, from Captain H C Keates, I M S proceeding on leave, with effect from the afternoon of the 9th July 1909

In Punjab Government Notification No 625, dated the 21st of July 1909, granting Lieutenant Colonel H Hendley I M S, Civil Surgeon, Ambala, combined leave, for "privilege leave of absence for 21 days" read "privilege leave of absence for 14 days," and for "leave on medical certificate for 1 year, 3 months and 9 days" read "leave on medical certificate for 1 year, 3 months and 16 days"

RAI SAHIB ATTAR CHAND, Civil Surgeon of Ludhiana, is appointed to officiate as District Plague Medical Officer in addition to his own duties, from the afternoon of the 2nd July 1909, vice Captain C E Southern, I M S who proceeded to the Central Research Institute, Kasauli, for training from the same date

SPECIALIST—Lieutenant W E Brierley is appointed a specialist in (c) Advanced Operative Surgery, 7th (Meerut) Division, with effect from 1st June 1909

CAPTAIN T G N STOKES, I M S, on special duty at Pachmarhi, is reposted as Civil Surgeon, Hoshangabad District

UNDER Section 6 of the Prisons Act, 1894, the Chief Commissioner is pleased to appoint Captain T G N Stokes, I M S, Civil Surgeon Hoshangabad, to the executive and medical charge of the Hoshangabad District Jail

THE services of Captain N H Hume, M B, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment in the Jail Department

LIEUTENANT COLONEL G F A HARRIS, M D, I R C P, I M S, Officiating Principal Medical College, Calcutta, and First Physician to the College Hospital, is appointed to officiate as Inspector General of Civil Hospitals, United Provinces, during the absence on leave of Colonel R D Murray, M B, I M S, or until further orders

HIS EXCELLENCY the Governor in Council is pleased to appoint Lieutenant J A Choudhank, I M S, to act as Civil Surgeon, Satara, in addition to his own duties, during the absence of Lieutenant A N Thomas, I M S, or pending further orders

LT COL I R ADIF, Civil Surgeon, Ferozpoor has been granted three months privilege leave from the 8th July 1909
Captain to be Major John George Patrick Murray, M B

CAPTAIN H S HUTCHISON I M S, made over charge of the duties of Superintendent of the Bannu Jail to Captain H W Pierpoint, I M S, on the forenoon of the 7th July 1909

THE services of Captain M F Reany, I M S are placed at the disposal of the Chief Commissioner of the Central Provinces

THE services of Captain L A H Lach, I M S, are placed at the disposal of the Government of Eastern Bengal and Assam

MAJOR J ENTRICAN, M D, I M S, has been granted by His Majesty's Secretary of State for India an extension of leave on medical certificate for two months

At an examination held at Bhamo on the 17th July, 1909 the undermentioned officer passed the prescribed test in the Chingpaw dialect of the Kachin language—

LIEUTENANT COLONEL K PRASAD, M B, I M S Civil Surgeon, Bhamo

MAJOR F L ORMAN, I A, Officiating Commandant, Burma Military Police Each of the above-mentioned officers is entitled to receive a reward of Rs 1,000

THE services of Captain G W Macdonachie, M B I M S are replaced at the disposal of His Excellency the Commander in Chief in India

THE services of Captain W H Boulth, I M S, are placed temporarily at the disposal of the Government of Burma for employment on plague duty

THE following promotions are made subject to His Majesty's approval—

CAPTAINS TO BE MAJORS

28th July, 1909

John Walter Forbes Rait, M B

Eugene John O'Meara, F R C S

Spencer Hunt, M B

Henry Albert John Gidney, F R C S, EDIN

MAJOR M DICK, I M S, on return from leave, is appointed to the Civil Medical charge of the Myingyan District, in place of Major J Penny, I M S, transferred

MAJOR J PENNY I M S, is appointed to the Civil Medical charge of the Akyab District, in place of Major T Stodart, I M S, proceeding on leave

CAPTAIN D FITZGERALD, I M S, Officiating Civil Surgeon, Sibsaigai, is appointed temporarily as Civil Surgeon, Cachar, with effect from the date of taking over charge

THE services of Captain N H Hume, M B, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment in the Jail Department

MAJOR R H MADDOX, I M S, Civil Surgeon of Ranchi, is appointed to act as Civil Surgeon of Darjeeling during the absence, on deputation, of Lieutenant Colonel J T Calvert, I M S, or until further orders

MAJOR V E H LINDSAY, I M S, Civil Surgeon Dabhangra is appointed to act as Civil Surgeon of Ranchi during the absence, on deputation, of Major R H Maddox, I M S, or until further orders

THERAPEUTIC NOTES

BRITISH MEDICAL ASSOCIATION MEETING, BELFAST

Among the exhibits at the British Medical Association Meeting, Belfast, that of Burroughs Wellcome & Co contained in addition to well known products of the firm some new and interesting preparations which are the results of recent researches.

The advantages possessed by 'Ergotin,' the active therapeutic principle of ergot in its purest form, are widely recognised. Another preparation of ergot, however, has lately been introduced under the trade name of 'Tyramine.' 'Tyramine' presents the chief active constituent of aqueous extracts of ergot, the organic base, p hydroxyphenylethylamine which is produced by bacterial and probably other fermentations on the amino acid tyrosine. 'Tyramine' may be used for raising the blood pressure in shock or collapse, and for producing contraction of the uterus post partum.

The arylisonates are also important additions to the products of the firm as the direct result of recent researches. These organic preparations of arsenic have been used with beneficial effect in trypanosomiasis, syphilis and malaria.

Sodium Par-aminophenylisonate, to which the name of 'Solmin' has been given, contains 22.8 per cent of arsenum (As) and is soluble in five parts of water at 60° F and in three parts at body temperature, giving a neutral solution which can be sterilised. 'Orsudan' (Sodium 3 methyl 4 acetyl aminophenyl isonate) is even more remarkable for its low toxicity relative to its percentage of arsenum. It is soluble in 2½ parts of water at body temperature and recent experiments indicate its utility in cases of Malaria.

Another product of laboratory experiment and research is 'Nizan,' a zinc salt of sulphathiazole which has proved itself as an antiseptic. Dissolved in the correct proportions it forms a soothing and non-irritating lotion for inflamed surfaces.

It is interesting to know that Messrs Burroughs Wellcome & Co have all their sera, vaccines, etc., prepared under the superintendence of a distinguished bacteriologist at the Wellcome Physiological Research Laboratories at Brockwell Hall, Herne Hill, and these products are not allowed to be issued to the profession until they have passed the most rigid tests for standardisation, sterility and toxicity.

Wellcome Diphtheria Antitoxic serum in addition to the phials containing from 1,000 to 4,000 units, is sent out in another strength, namely, from 1,000 to 5,000 units to each cubic centimetre of fluid, and distinguished as Diphtheria Antitoxic serum *High Potency*. To meet the difficulty where a precise diagnosis is impossible at an early stage of a disease a series of polyvalent sera have been introduced. Notable among these is the 'Wellcome' Anti Streptococcus Serum, *Polyvalent*, from horses immunised against cultures of streptococci from no less than 60 sources in a variety of diseases including erysipelas, scarlet fever, septicæmia, etc.

Now that its importance for diagnostic purposes has been established, considerably increased interest is manifested in preparations of *Tuberculin* and *Tubercle Bacilli*, and the series has been amplified. The new and old formulae of Dr Koch are still used and the *Tubercle Bacilli* (killed) both human and bovine are also issued for the estimation of the Opsonic Index by Wright's method. Also *Tubercle Bacilli* (killed and finely ground) for agglutination tests.

The 'Wellcome' Brand Vaccines are sterilised and accurately standardised and issued in phials containing 1 cc. The series now includes 'Wellcome' Acne Bacillus Vaccine and 'Wellcome' Gonococcus Vaccine.

'Wellcome' Brand Chemicals are the outcome of a constant effort to fix a high standard with regard to the substances used in medicine, and the specimens shown amply maintain the already high reputation of this series. 'Wellcome' Brand Chloroform is favourably known to anaesthetists and is now supplied in 30 cc and 60 cc sealed tubes, as well as the ordinary glass stoppered bottles.

The importance of sending out solutions for hypodermic and other injections in such a manner that their potency will be unimpaired has not been overlooked, and 'Ergotin,' 'Hemisine' (the active principle of the medulla of the suprarenal gland) and others in the 'Vaporole' series are now sent out in amber coloured tubes or ampoules of special design hermetically sealed, but so constructed that they can be easily broken at the neck when the contents are required for use.

Under this brand is also issued 'Vaporole' Aromatic Ammonia glass capsules containing Aromatic Ammonia each surrounded by absorbent cotton wool and enclosed in a silken sheath. When broken between the fingers they emit a most refreshing and stimulating odour, and present many advantages over the ordinary smelling bottle.

Medicine cases in great variety were exhibited, including a complete range of 'Tabloid' First Aid Equipments containing 'Tabloid' Compressed Bandages and Dressings with other emergency requirements suitable for tourists and travellers both at home and abroad. In addition to those fitted with medicines and surgical requirements for the physician's use, very handy cases containing 'Soloid'

reagents and apparatus necessary for urine, water and sewage analyses, and for bacteriological examination were noticed.

'Hazeline' Snow and 'Hazeline' Cream, presenting the well known antiseptic and mildly astringent characteristics of 'Hazeline' were shown, and there were also two ointments, 'Boiophan' Boic Acid ointment and 'Phenofax' Cubic Acid ointment, both of which are bland soothing and healing applications very suitable for the skin.

'Opt' Liquid Dentifrice is an elegant and agreeable preparation which efficiently cleanses the teeth, and diluted with water may be used advantageously as an antiseptic mouth wash.

In 'Vina' Tonic Wine the alkaloids of cinchona are associated with glycerophosphate of calcium and dissolved in a pure wine of sound quality and agreeable flavour.

A convenient laxative for children and fastidious patients is provided in 'Aluva' Aromatic Liqueur of Cascara Sagrada 'Tabloid' Brand Pastilles are models of excellence as medicinal lozenges they present in a very acceptable form medicaments which it is desired to dissolve slowly in the mouth. Most of these are intended especially for the throat, but the 'Tabloid' Laxative Fruit Pastilles are valued for their gentle and efficient aperient effect.

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested.

Communications on Editorial Matters, Articles Letters and Books for Review should be addressed to THE EDITOR *The Indian Medical Gazette* c/o Messrs Thacker, Spink & Co, Calcutta.

Communications for the Publishers relating to Subscriptions, Advertisements and Reprints should be addressed to THE PUBLISHERS, Messrs Thacker, Spink & Co, Calcutta.

Annual Subscriptions to "*The Indian Medical Gazette*," Rs 12 including postage, in India Rs 14, including postage, abroad.

BOOKS, REPORTS &c, RECEIVED —

- Second Report of the Indigenous Drugs Committee Government Monotype Press
Aids to the Analysis of Food and Drugs, Third Ed. By Mott and Patis. 36 net. (Messrs Baillière, Tindall & Cox.)
Formulaires des Spécialités Pharmaceutiques pour 1909. Messrs I B Baillière et fils.
Report of the Bombay Bacteriological Laboratory, 1908.
Reprint. Plague in Further India. Dr I D Gilette, Civil Hospitals and Dispensaries, Burma, 1908.
Report, Government Medical School, Rangoon 1908.
The Prophylaxis of Yellow Fever. By G M Guiteras, Treasury Dept., U S Public Health and Marine Hospital Service.
The Physiological Standardization of Digitalis. By C W Edmunds and Worth Hall, Treasury Dept., Public Health and Marine Hospital Service of the United States.
Studies on Thyroid. By Reid Hunt and A Seidell, Treasury Dept., Public Health and Marine Hospital Service of the United States.
Notes on Vaccination in the Punjab for the year 1908-1909. By Lt Col O I Bamber, I M S.
Surgical Anæsthesia. By H Bellamy Gardner (Messrs Baillière, Tindall & Cox, London).
International Clinics, Vol II, VII Series (Messrs I B Lippincott Co London).
Report of the Sanitary Commissioner for Bengal, 1908.
Thirteenth Annual Report of the Sanitary Board, Madras 1908.
Blackwater Fever (Bilious, Malignant, Tertian Ague) By A G Newell, M D C M (Messrs John Ball Sons and Danielsson Ltd 1909).
Report of the Institute for Medical Research 1908, Federated Malay States.
Annual Report of the Bacteriological Section of the King Institute of Preventive Medicine Gundy, 1908.
Herpetomonas Lygaei (Patton) and Crithidia Geiridis (Patton) Appendix 2. By Capt W S Patton I M S Madras.
Report on Plague in the Gold Coast, 1908. By W J Simpson M D (Messrs Churchill, London).

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

- Major Melville I M S Simla Major Dyer I M S, Maymyo, Burma.
Lt Col W E Jennings I M S Bombay, Major Marjoribanks I M S, London. Hospital Assts Rannath Varma Malwa Capt Beauchamp Williams I M S, Buxhore Capt St John Moses I M S, Calcutta Major S Anderson I M S, Punjab. Capt Gillitt I M S, Buxar, Lt Col L G Fischer I M S, Delhi Dun L Sen, M D, Dinapore. Lt Col D Green I M S, Rangoon. Major Dr S Mullahann Hyderabad Deccan Dr R L Patterson Assam Major G W F Ewans I M S, Lahore. Messrs Burroughs Wellcome and Co, London. Lt Col J R Roberts M D F R C S I M S Indore Asst Surgn Fordham Fort, Indore. Capt W Rothney Battye I M S, Duns N B, Capt L Bodley Scott, I M S, Bakingang, Registrar, Royal College of Physicians, London. Maj C H James I M S, London Major Gabbett, I M S, Civil Hospital Madras Capt Forster Reaney, I M S, Central Provinces Dr Lankester, Peshwar.

Original Articles.

THE INDICATIONS AND TECHNIQUE OF TRANSFUSION IN CHOLERA, WITH A NOTE ON CHOLERA IN EUROPEANS IN CALCUTTA

By LEONARD ROGERS, M.D., I.R.C.P., B.S., F.R.C.S.,
MAJOR, I.M.S.,

Professor of Pathology, Medical College, Calcutta

INTRAVENOUS transfusion of salt solution appear to have been first tried in the treatment of cholera by Drs Latta and Mackintosh in Edinburgh in 1831. They had a mortality of 84 per cent in 166 cases thus treated. It has since been used by numerous workers, but, owing to its astonishingly favourable immediate effect being usually of only a very few hours' duration, it does not appear to have come into very general use in India, the home of cholera. Thus Goodeve remarks that it is very doubtful if the mortality was reduced by the measure, which on account of no means having been found of retaining the fluid in the system, just missed being a glorious discovery. Wall in 1893 enthusiastically advocated the measure and recorded a success after six injections, but his mortality was a little over 70 per cent among 193 cases. Captain J. W. D. Megaw (1) and the writer tried intravenous injections, controlled by observations on the blood pressure, in 1906, at the Calcutta Medical College, using normal saline solution (one drachm to the pint) as generally advised, but with no very material effect on the mortality, collapse usually recurring within three hours or so after the injections.

In 1908 I commenced using hypertonic saline solutions, with the assistance of Captain Maxwell Mackelvie, (2) with the result of at once reducing the mortality from an average of 61 per cent—in the five years before treatment by transfusion was revived—to 33.5 per cent. Further details will be found in a report on these cases written by me at the request of Lieutenant-Colonel C. P. Lukis, I.M.S., and published by him in the Annual Report of the Calcutta Medical College Hospital in the *Indian Medical Gazette* of June 1909. I need only add here that during the first eight months of the present year these results have been fully maintained, as up to the present time 278 cases have been treated with a mortality of only 33.8 per cent. The time, therefore, appears to have come when it is advisable to make the method more generally available by recording the experience gained as to a number of practical points, which are essential to its easy and successful application. A number of observations on the alterations in the composition of the blood in cholera, which furnish a complete scientific basis for the use of hypertonic solutions, will be found in a paper

in the Proceedings of the Royal Society, B Vol 81, 1909.

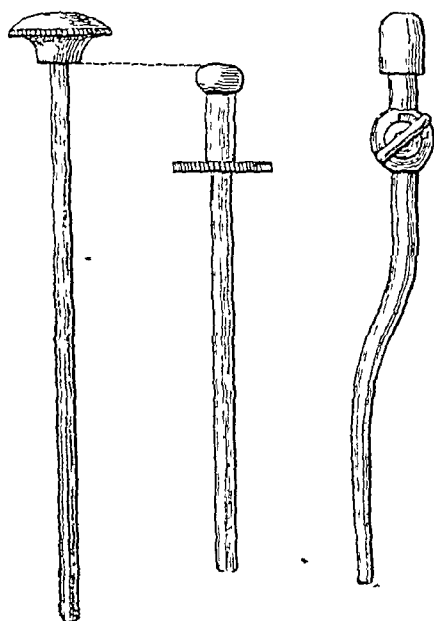
Methods of replacing the lost body fluids in Cholera—Cholera exhibits all degrees of intensity from a mild diarrhoea to the so-called *cholera sicca*, in which fluid is poured out so rapidly into the small bowel that the patient dies of collapse before any fluid escapes by the rectum. It must, however, be always borne in mind that cases which are very mild on admission may at any moment pass into the gravest collapse, and that there is no disease which requires such constant vigilance in order to obtain the best results, and certainly none in which correct treatment will snatch so many valuable lives from the very brink of the grave. Estimations I have made of the actual degree of concentration of the blood due to loss of fluid in cholera prove—conclusively contrary to the teaching of George Johnson—that there is a very close relationship between the loss of fluid from the body and the death-rate from the disease. In very severe cases two-thirds of the fluid of the blood is lost, while in moderately severe cases the loss averages one-half and clearly necessitates active measures for its replacement. Further observations, made immediately before and after intravenous injections of given quantities of saline solutions, show that in a severe case, with nearly, or quite, complete absence of the pulse at the wrist, four pints of fluid are required in an adult male (a little less in a female) in order to dilute the blood down to, or—better—a little below, its normal specific gravity of about 1.056. It is clear, then, that in the collapse stage of cholera the indication is to replace the lost fluid in one or more of the following ways—

Rectal Injections—In a comparatively mild case with a fair pulse the large bowel retains its powers of absorption, and the patient may often be tided over the danger of serious collapse by the use of copious saline enemata. From a half to one pint should be given every two to four hours, and continued after reaction has taken place at four hours' intervals until the free excretion of urine is established. Recently I have used slow continuous saline injections by the bowel in borderland cases in which there were some indications for intravenous transfusion, and obtained a marked improvement in the pulse. The rate of flow was regulated—as described below—at one ounce a minute, equal to three pints an hour, the hypertonic solution being used. This simple measure promises to be of great value in cases of moderate severity by avoiding the necessity of the less readily available intravenous injections, which are of course more difficult to carry out.

Subcutaneous Injections—As long as there is any pulse at the wrist salines injected subcutaneously in the axilla, thighs or under the breast are absorbed. This measure was mainly relied on at the Medical College Hospital before the intravenous injections were re-introduced.

by me, and the high mortality in those days clearly shows the limited value of subcutaneous injections, although some improvement is likely to result from the use of hypertonic instead of normal saline solutions. The great drawbacks are the difficulty of getting in sufficient fluid under the skin, and the frequency of abscess-formation, in spite of the utmost care, on account of the low vitality of the tissues in cholera. When there is but a very feeble pulse or none at all to be felt, the fluid is not readily absorbed and the measure is insufficient. Some lives may certainly be saved by this means, but I always prefer to use the intravenous method whenever any operative measure is necessary.

Intraperitoneal Injections—Subcutaneous injections fail in severe cases, and circumstances often prevent the use of the intravenous method, especially during epidemics as it requires much skill and time. I have, therefore, devised a simple cannula which allows three pints or so to be rapidly injected into the peritoneal cavity, from whence it is readily absorbed if the patient be not already in a moribund condition. Major Vaughan, I.M.S., kindly tried it in about 40 cases at the Campbell Hospital last year and was satisfied that this method was easily carried out and certainly reduced the case-mortality. I have only used it in a few cases at the Medical College Hospital, chiefly in children in whom it is often difficult to find a vein large enough for transfusion, and I am satisfied that it saved several lives. I regard the intravenous method as the ideal one



*Intraperitoneal Cannula
(Natural Size)*

*Stop cock intravenous Cannula
(Natural Size)*

Fig 1

in marked cholera collapse, but when it is for any reason not practicable, I recommend the intraperitoneal injections as a useful substitute for it in cases in which continuous rectal enemata

will not suffice to prevent or tide over the collapse. Figure 1 illustrates the shape and size of the instrument. It consists of a steel cannula silver-plated externally. One end is sharpened like a cork-borer, while near the other is a flange to prevent it slipping in too far, a portion projecting beyond this for the attachment of rubber tubing.

A blunt stilette is provided for cleaning and oiling the inside of the tube, when not in use. After cleansing the skin as for a surgical operation, a small incision is made with a narrow-bladed knife about an inch below the navel, and carried through the skin and fascia as deeply as it safely can be without wounding the peritoneum. The cannula (without the stilette) is now inserted to the bottom of the incision, a finger being placed near the "point" to prevent its suddenly slipping deeply into the peritoneal cavity, which it is now made to enter by a steady boring motion during which the abdominal wall may be supported by an assistant. Three pints of hypertonic salt solution can be easily run in within about ten minutes, less being used in children so as not to distend the cavity. Then the cannula is then withdrawn, a single suture through the greater thickness of the abdominal wall passed to unite the incised tissues and collodion applied. The sutured wound can readily be opened up if the injection requires to be repeated. The foot of the bed should be slightly raised to cause the fluid to run into the upper part of the cavity, as but little absorption takes place from the pelvis, but care must be taken to avoid embarrassing the action of the diaphragm. This method is still on its trial, and further evidence is required to enable its exact value to be determined. I described the instrument at the Bombay Medical Congress, and was informed by Dr. Powell (3) that he had given intraperitoneal injections in cholera at Sylhet, by means of a sharp pointed curved trocar with an orifice in the convexity, a double layer of the abdominal wall being perforated by it. His method does not appear to be much used, probably on account of fear of wounding the intestines.

The Indications for Intravenous Saline Injections in Cholera—As in the severe collapse of cholera intravenous saline injections afford the most rapid and trustworthy method of warding off the threatening circulatory failure, the question of deciding when this measure is necessary is an all-important one. The state of the PULSE will obviously furnish the most important indication, but the real difficulty is to decide where to draw the line between cases that require intravenous injections and those in which they are not necessary. It must also be always borne in mind that a patient admitted with a very faint pulse may at any moment rapidly pass into a state of most serious collapse, usually after the passage of a large rice-water stool, often amounting to two or more pints. If there is no pulse at the wrist or if it is

barely perceptible, there can be no hesitation about the immediate use of intravenous injection. Some of the older Anglo-Indian writers regarded the absence of pulse in the brachial artery as a certainly fatal sign, but I have seen such cases recover after large hypertonic transfusions, and it is astonishing how almost moribund patients may be brought round and ultimately recover under this treatment. During the cholera season, when such cases are liable to be admitted at any time it might be well to have at least a quart of saline solution kept ready at blood heat in a "Thermos" flask, so as to be immediately available without the serious, and possibly fatal, loss of time involved in heating the solution to the required temperature. On the other hand, when there is quite a fair pulse, transfusion is not immediately necessary, and rectal injection may first be tried, careful watch being kept for such further failure of the blood-pressure as may at a later period necessitate intravenous administration. It is in cases that show a distinct but feeble pulse that the difficulty arises, for even with much experience the finger is but a poor agent in estimating the exact fall of blood-pressure in such cases.

Blood-Pressure Observations as a Guide to the Necessity for Transfusion in Cholera—It is here that I have found the use of modern instruments for estimating the blood-pressure of such great value. The most accurate is one of the modifications of Riva-Rocci's instruments, such as Mummery's or Martin's, in which air is pumped into a covered rubber bag bound round the upper arm, and the exact pressure required to obliterate the pulse at the wrist is read off by means of a column of mercury connected with the bag by a Y tube. More rapid and portable instruments are von Bosch's and Potain's (supplied by Down Bros) and Hill and Bernard's. In the former a rubber ball is placed over the artery and the pressure required to stop the pulse is read off on a dial. I have found Potain's instrument a very quick and useful means of estimation, but after over a year's constant use it got out of order. The Riva-Rocci is a more trustworthy and lasting apparatus, and is supplied by Huxley of London. As a result of an experience of nearly 300 cases, over half of whom were transfused, I have come to regard a blood-pressure of under 70 mm in an adult male, and a few millimetres lower in women and children, as an indication for intravenous injections. That this is a safe line is shown by the fact that of about 100 cases treated during the present year no patient in whom this measure was not considered necessary has died either in the collapse stage of the disease, or later of complications. I am hopeful that the introduction of continuous rectal injections at regulated rates may reduce the number of cases requiring intravenous transfusion, but further experience is required on this point.

Restlessness, Cyanosis and Cramps as Indications for Intravenous Injections—In addition to the pulse there are certain symptoms which indicate the urgent need for rapid replacement of the lost fluid in cases of cholera. The most important of these is marked restlessness in the collapse stage, which must, however, be carefully distinguished from the same symptom in the later toxæmic and uræmic condition. The restlessness of collapse is accompanied by cyanosis, and commonly also by severe cramps, while on opening a vein the blood is found to be very thick and tarry looking. If its specific gravity be taken, it will be found to vary between 1065 and 1075, which means that from half to two-thirds of the whole of the fluid of the blood has been lost. The most convenient way of taking the specific gravity of the blood is to arrange in a small wooden box a number of small closely-stoppered bottles of mixtures of glycerine and water of different specific gravities, every two degrees between 1040 and 1076 being represented. Convey a small drop of blood by means of a capillary pipette to one of the bottles and note if it floats or rises in the mixture. If it falls, another drop is conveyed to a heavier mixture, until the one in which it just floats for a second or two is found, this gives the specific gravity. The degree of dilution at any stage of a transfusion can be similarly estimated within a minute or two after some practice. Variations in temperature make a slight difference but not sufficient to impair the clinical value of the test. I find this an easier and less unpleasant method than the chloroform benzene method.

Another indication for transfusion is the occurrence of severe cramps, which are nearly always accompanied by some cyanosis. The rapidity with which they are relieved by the time a single pint has been injected is one of the most striking advantages of this measure. Slight cramps may be relieved by continued rectal injections.

The Technique of Intravenous Injections at Regulated Rates—Only those who have tried to insert a cannula into a collapsed vein in a cholera case can realise the difficulties which may be encountered, and which have before now completely baffled very experienced surgeons. Yet with experience and the knowledge of a few practical points the operation becomes a simple one so that the assistant-surgeons working in the cholera wards here very quickly attain the requisite skill. The following are the main points to be borne in mind—

I Choice of a Vein—The median basilic vein in front of the elbow is the most convenient one to choose, and is not often absent. If such an irregularity is found, one of the other neighbouring veins will do. If a second transfusion is required, the corresponding vein of the other arm should be used. Very occasionally even a third injection becomes necessary, and if no elbow vein of sufficient size can be found, a

large one is available in front of the inner malleolus at the ankle. Captain J. W. D. Megaw, I.M.S., first pointed out to me the value of this vein. He informs me that in severe cases of cholera requiring a third or fourth transfusion, it may give no external evidence of its presence. By making an incision in a direction somewhat obliquely to the normal course of the vein it can easily be found as a white cord. It is usually much contracted, and may only admit a narrow tipped cannula, and allow of a slow rate of flow of the saline solution. In small children the internal saphenous vein in the thigh may have to be used, unless the fine-pointed cannula described below is available, in which case one of the elbow veins will suffice even in quite young persons.

II *The Insertion of the Cannula*—No anæsthetic is necessary for this small operation in cholera, although in children a little 2 per cent cocaine solution might be injected locally. A piece of bandage is tied lightly with a slipknot round the upper arm so as to distend the veins. An incision of from half to one inch in length is made over the vein, which must be carefully dissected out from the surrounding tissues before being opened. Inadequate performance of this step is the cause of most failures in this little operation. A double strand of silk is now passed under the vein by an aneurysm needle, and the lower or distal part tied with one strand, while the other strand is loosely looped round the upper portion of the vein ready to be tightened the moment the cannula is inserted. The best method of performing the important step of opening the vein is the following—As it is still distended by blood, the superficial coat is seized with a fine pair of dressing forceps and an oblique cut sloping upwards beneath the forceps is made with a pair of scissors through nearly half the entire vein wall, thus forming a flap which may be held open by the forceps. The cannula is then passed under this flap and guided by the remaining intact deep coat of the vein must enter its lumen, along which it is passed for half an inch or more and the ligature tightened around it. The vessel holding the saline solution having previously been filled and all air excluded from the tubing by allowing a full stream to run through before inserting the cannula it only remains to remove the bandage round the upper arm to allow the fluid to pass along the vein. A piece of sterile gauze is then placed over the wound.

STRENGTH AND QUANTITY OF SALINE SOLUTION REQUIRED

The Strength of the Solution—During 1908 the solution used contained 120 grains of sodium chloride and 3 grains of calcium chloride in each pint. In 1909 I increased the sodium chloride to 150 grains with very similar results. In view of the larger quantities of fluid now being given

by the slow method described below I have recently gone back to the first-mentioned strength as the most suitable for general use. In view of the good results obtained I have not so far attempted to complicate matters by adding other salts to make the fluid injected more nearly resemble the blood, although it may eventually be found that some further improvement may be made in that direction. The addition of 5 grains of potassium chloride to each pint would make the salts present be very nearly in the same proportion as in Ringer's fluid which is so successful in keeping up the activity of a perfused heart, and so would be likely to be an improvement. I am arranging to give it a trial. The solution recommended should have a specific gravity of 1.006 at a temperature of 70° F., but at a temperature of 90° F. it rises to 1.008. These data constitute a useful check on dispensers, which is worth making use of in this country. On more than one occasion a temporary falling-off in the results obtained led to chemical examination of the solutions, which proved to be below the strength ordered, thus a striking confirmation of the advantages of the hypertonic solutions was furnished by these experiences. I prefer to add the calcium chloride (and potassium chloride if this be used) from a stock strong solution, as a marked excess through any mistake in dispensing might lead to disastrous results.

Temperature of the Fluid—This should be at blood heat or a little over, say 100° F. As slight rigors with a rise of temperature to from 101° to 103° F. often follow the transfusion, it does not appear to be advisable to use warmer solutions, especially as in severe forms of cholera hyperpyrexia may sometimes ensue during the reaction stage (even when no fluids have been injected) doubtless on account of the restoration of the blood-pressure being followed by absorption of toxic albumoses from the intestines. Many of the older writers look on the reaction stage as the most dangerous in cholera, while Norman Chevers regarded cholera as a fever masked by low surface temperature in the collapse stage. If the rectal temperature is 100° F., or more in collapse, special watch must be kept for a marked rise during reaction, which will require active cooling measures to prevent it passing into very high fever. When the rectal temperature is above normal, I think the injected fluids should not have a temperature of above 98.4° F. as the improved circulation rapidly restores the surface heat. A rise of temperature not exceeding 103° F. is by no means a bad symptom, being generally accompanied by a good-tension pulse, and even a somewhat higher temperature does no harm if it be of brief duration.

The Quantity of Fluid to be Injected—I feel sure that one of the reasons why transfusions have hitherto produced but an evanescent improvement is that the quantities of fluid given have often been far too small. One or two

pints produce such a marked improvement in the pulse that the injection is often stopped at that point, indeed, I have found records in which the injection had been stopped after only 9 to 12 ounces had been given. My observations on the blood-pressure during numerous transfusions show that an apparently full and strong pulse may occur with a blood-pressure of only about 80 mm probably owing to partial vaso-motor paralysis. If transfusion is stopped at this point, slight further diarrhoea will cause rapid recurrence of dangerous collapse. Again, the quantities mentioned above will not nearly replace the amount of fluid which has been lost from the blood as estimated by taking the specific gravity or centrifugalizing the debrinated blood in the hæmatocrite. To an adult patient who requires intravenous injection, less than three pints of hypertonic fluid should never be given, while if his state of collapse be marked, four pints may always safely be administered. These amounts will raise the blood-pressure to over 100 mm unless vaso-motor paralysis is unusually marked, in which case the prognosis is exceedingly grave. A full, high-pressure, bounding pulse should be aimed at, not merely a fairly good one. Even after four pints the continued passage of copious rice-water stools may be followed by recurrence of collapse, and necessitate the transfusion of three or four pints more—a number of very severe cases have recovered after two, and a few after three transfusions. Even in spite of such copious injections 10 per cent of this year's deaths have occurred in the collapse stage—these figures include one moribund patient who died before transfusion could be carried out. In some cases fatal collapse rapidly followed the passage of several pints of rice-water stools before a second transfusion could be carried out. Such cases were of an exceedingly severe type, and were nearly all admitted in extreme collapse within a few hours of the onset of the disease. It is clear, then, that the injection of even four pints of hypertonic fluid is not sufficient in such cases, while more cannot well be given at one time by the usual rapid method for the blood-pressure will generally have been raised to normal, and the blood diluted down to or below the normal point by this quantity. The indication here is to give three or four pints quickly to restore the circulation, and then to continue slow injection in order to keep up the effect, the rate being so regulated that the additional fluid has time to pass into the tissues, and create a reserve which will allow of further extensive loss by the bowel without sudden fatal collapse being thereby induced. I have devised the following method of obtaining the desired result.

Apparatus for Transfusion at given rates— Figure 2 illustrates the graduated glass bulb and the stop-cock transfusion cannula which I use for regulating the rate of flow during

intravenous injections. The bulb holds a little more than a pint, and its capacity is marked by scratching it with a diamond from the junction of the neck with the top of the globe downwards

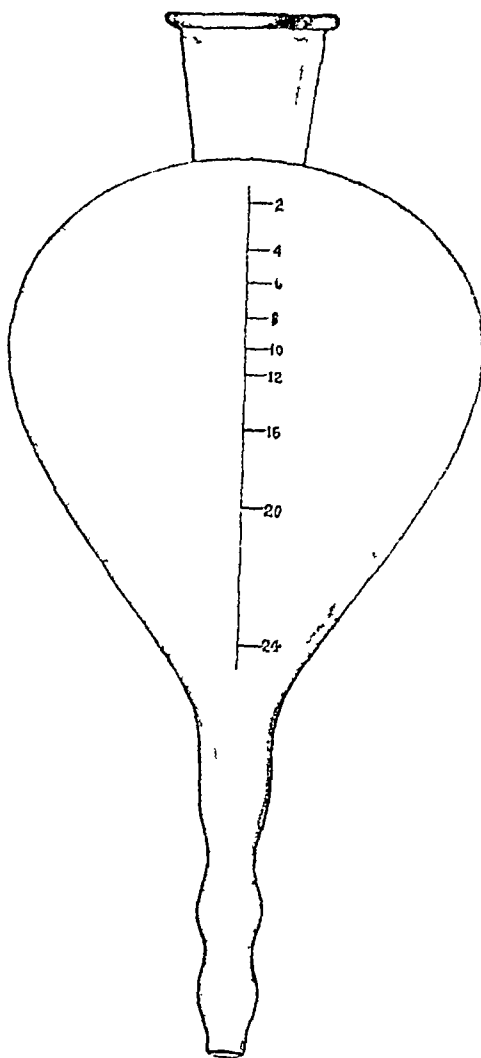


Fig 2—Graduated transfusion bulb
(Half Natural Size)

to show every two and four ounces. The cannula is of silver and its distal end is gradually narrowed towards the point. It will thus readily enter even a small vein, and on being pushed in will fit tightly in the opening. It is, however, well to tie it in to prevent any slight movement on the part of the patient displacing it. The other end of the cannula is fitted with a stop-cock which enables the current to be regulated as required. After rapidly running in about three pints in order to fully restore the blood-pressure, a further amount may be slowly given at any desired rate in the following manner. The bulb is filled to the neck and the stop-cock partially closed. The time which 2 ounces take to flow into the vein is noted, and if the rate be more rapid than is desired, the current is turned off a little. By the time four to six ounces have been run in, the rate can usually be easily regulated. A convenient rate is one ounce a minute, which

gives a pint in twenty minutes or three pints an hour. If preferred, a slower rate can readily be obtained. Should the fluid cease to enter the vein, this is probably due to the formation of a clot in the vessel, and in this case if sufficient fluid has not been given, another vein should be opened. Observations of the blood show that at these slow rates the fluid passes into the tissues when once the specific gravity of the blood has reached the normal figure, so that the blood does not become diluted to a harmful extent. The sinking in of the eyes then becomes less marked, the voice becomes clear, and the patient is in a much better position to stand further loss of fluid by the bowel, which loss will tend to remove some of the toxins from the organism. The kidneys frequently at once resume their functions and more toxins are thus got rid of. A close watch must be kept on the temperature, especially during damp hot weather, which taxes the heat-regulating mechanism most severely. After four pints of the hypertonic solution have been given, a quantity amply sufficient to replace the chlorides which have been lost in the stools, it is advisable to continue the transfusion with a fluid of the strength of 90 grains of sodium chloride to each pint. This method of rapid, followed by regulated slow continued, transfusion has saved some very severe cases from a recurrence of collapse, but it must always be borne in mind that in such extreme varieties of the disease the reaction is likely to be very severe, and death may subsequently take place as the result of an overwhelming dose of the toxin absorbed from the small intestine. In fact, transfusion is a treatment directed against the most urgent symptom of cholera, namely, dangerous collapse immediately threatening life. It does not deal directly with the cause of the disease, although it may greatly assist the elimination of toxins, for excretion of urine may rapidly follow a copious transfusion. That the use of hypertonic intravenous injections will save very many lives is certain. During 1908 among 110 severe cases of cholera requiring this measure the death-rate was only 41.8 per cent against 84 and over 70 per cent respectively in the series reported by the Edinburgh introducers of the intravenous injections and by Wall, normal saline solution having been used for these. Moreover, time is afforded for the use of other curative measures, should such be discovered.

CHOLERA IN EUROPEANS IN CALCUTTA

Ever since a filtered water-supply was introduced into Calcutta cholera has been much less prevalent among Europeans in this city, specially among the troops. It most commonly occurs in the sporadic form, which is generally considered to be less severe than that met with in epidemic outbreaks. Those who have had much experience in Calcutta, however, are aware that the mortality of even sporadic cholera

is very high among Europeans. In order to ascertain the true facts I have obtained the returns of the European General Hospital for a number of years past and have looked up and analysed the clinical records of the cases, excluding only some native Christian children from a mission school, a few Chinamen and two Negroes.

Previously to 1904 the usual treatment consisted in administering cardiac tonics, some form of intestinal antiseptic and alcohol. Nearly all the older Anglo-Indian writers strongly condemn the use of alcohol in cholera. Its tendency to dilate the skin vessels and increase vaso-motor paralysis certainly appears to me to contra-indicate this form of stimulant in a disease in which the limited amount of thickened blood is all required to maintain the vitality of the circulation in the vital centres of the body. The same reasoning leads me to think that hot water bottles are also harmful in the collapse stage. In the great majority of the cases no injections of saline fluids were given, not even by the rectum. In a very few intravenous transfusion* was done, generally at a very late stage of the disease, while the quantity was commonly too small to have any lasting value, as little as from 5 to 12 ounces having in several cases been injected. These years may be taken, then, to show the death-rate in cholera of Europeans for whom, as a rule, no effort was made to replace the fluids lost from the body. As shown in Table I the mortality in this period reached the terrible figure of 87.4 per cent and the recovery rate was only 12.6 per cent.

From 1904 to 1907 normal saline injections in some form or other were nearly always used. The subcutaneous method was the favourite one, often combined with rectal injections, but only rarely with intravenous administration. The mortality among the small number of cases in these years was reduced to 63 per cent, giving 37 per cent of recoveries, but a close examination of the records show that this death-rate is doubtless an under-estimate, as among the 11 recoveries no less than 5 did not show undoubted symptoms of cholera while in hospital. They include a curious case of severe vomiting and diarrhoea in a hysterical woman, who was retained as having been discharged from hospital cured of cholera twice within 24 days. Nevertheless, there was certainly some reduction in the death-rate during this period due to the more extended use of normal saline solution. Combining the figures of the years 1895 to 1907 we have 125 cases with a mortality of 81.6 per cent, and a recovery rate of 18.4 per cent, against a mortality of 61 per cent, and 39 per cent of cures among the native patients at the Medical College Hospital in

* Messrs. Down Bros., of 21, St. Thomas' St., London, E.C., make both the cannula and the graduated transfusion ball, which can be obtained from T. C. Nundan and Sons, 18, Karsweepara Road, Bowbazar, Calcutta.

the days before the introduction of hypertonic intravenous transfusions. The recoveries were thus twice as frequent among Native as among European patients in Calcutta.

Table I—DEATH-RATES AMONG EUROPEANS IN CALCUTTA FROM CHOLERA

Years	Treatment	Cases	Mortality	Recoveries
1895-1903	Saline injections rarely used	95	83 87.1%	12 12.6%
1904-1907	Normal saline subcutaneously	30	19 63.4%	11 36.6%*
1895-1907	Nil or normal saline solutions	125	102 81.6%	23 18.4%
1908-1909	Hypertonic saline solutions	39	23 59.0	16 41.0%

* Over estimate as several doubtful cases are included

Lastly, we have the records of 1908 and 1909 up to early in September, including the recent lamentable outbreak among the nurses and in the children's ward. Here again the figures are small, although the cases were undoubtedly genuine cholera. During this period, hypertonic saline solutions were used as recommended by me, having been given mainly by the subcutaneous method during 1908 and intravenously in 1909. The death-rate in this period was 59 per cent, so that 41 per cent recovered—twice as large a proportion as in the previous thirteen years.

Nevertheless, the mortality in Europeans is still considerably above that observed during the last two years among Natives at the Medical College Hospital who were treated by means of hypertonic transfusions, and the reason for this is worth enquiring into. Merely to say that the disease is more severe in Europeans does not help us in the treatment of a case unless we know wherein the greater danger lies. I have therefore minutely analysed the notes of 106 consecutive cases in the European Hospital from 1895 to 1906 to ascertain the proportion of deaths in the different stages, the results being shown in Table II. It will be seen from these figures that the great majority of the deaths, namely, 62 per cent, occurred during the collapse stage, as would naturally be expected when saline injections were very seldom used. The results of the last two years at both the Medical College and European General Hospitals show that in the great majority of cases death from collapse can be prevented by copious repeated intravenous injections of hypertonic saline solution, although a few exceptionally severe cases may still be lost in this stage owing to the continuance of excessive evacuations.

Table II—PROPORTION OF DEATHS IN THE DIFFERENT STAGES OF CHOLERA.

Stage	Deaths	Percentage.
Collapse	58	62%
Reaction	22	23%
Uræmic	14	15%

The severity of the Reaction-stage in Europeans—On reading the descriptions of cholera by former Anglo-Indian writers I have been much struck by the stress that several of them laid on the reaction stage as the most dangerous period of the disease. This statement is somewhat at variance with my experience with Native patients, in whom collapse is still the most frequent cause of death even after transfusion. It is, however, true that even in the case of Natives, when once the collapse-stage has been successfully tided over, patients have during the present year been more frequently lost from severe reaction, usually with high temperature, than from any other complication, not excluding the much dreaded uræmia. This is partly due to the death-rate from uræmia of the total admissions having been reduced to one-half at the Medical College Hospital this year by measures based on the principle of endeavouring to maintain a sufficiently high blood-pressure to enable the kidneys to resume their suspended functions.

In the European series of cases from 1895 to 1906 shown in Table II, after collapse, death most frequently occurred in the reaction-stage, namely, in 23 per cent of the total number. The proportion of deaths in the reaction-stage to the total admissions was 20 per cent against 8.8 in the present year at the Medical College Hospital in an almost equal number of Native patients, although a very much larger proportion of the latter was tided over the collapse-stage by transfusion to face the dangers of reaction. In the present year at the European Hospital a large proportion of the deaths took place in the reaction-stage, owing to so many very severe cases having been saved from dying of collapse by the use of hypertonic transfusions. It is evident from these facts that the reaction-stage of cholera is much more severe in Europeans than in Natives of India.

Further light is thrown on the causation of this high mortality during reaction by a study of the temperature in this stage in patients who were treated without any saline injections. These are shown in Table III.

Table III—TEMPERATURES IN CASES FATAL IN THE REACTION-STAGE

Highest temperature	Total cases	Cases receiving no Saline Injections
Below 103°F	3	2
103-104°F	4	3
104-105°F	5	2
105-106°F	7	6
106 & over	—	3
Total	22	16

It will be seen from this table that in no less than 19 out of the 22 cases that proved fatal in the reaction-stage the temperature rose to 103°F and over, while in 10 it reached the hyperpyrexial

point of 105°F and over, in two cases being so high as 106.8°F. Yet of these last 10 cases in only one had saline solution been given in any mode whatever. Thus fatal hyperpyrexia was a very frequent cause of death even in those cases of cholera in Europeans which were sufficiently mild to survive the collapse-stage without the assistance of any form of saline injections. In fact, hyperpyrexia was the cause of death in 28 per cent of those patients who ultimately succumbed after passing through the collapse-stage. It is not, therefore, surprising that when a large number of very severe attacks of cholera in European patients is tided over most serious collapse by copious transfusions, a good many cases are lost during the reaction-stage, some with hyperpyrexia. This well-known, and justly dreaded type of the disease has been specially prevalent at both the Medical College and European General Hospital this year, and is exceedingly difficult to combat. On meeting with several cases at the former institution I got Captain Emslie Smith, I.M.S., kindly to analyse the saline solutions used, but no chemical cause of such high temperatures was found by him. The occurrence of so many hyperpyrexial cases in the European Hospital during the last few years, among patients who had never had any salines administered, makes it quite clear that the real explanation of their occurrence is the rapid absorption of toxins (probably albumoses) from the intestinal canal as a result of the restoration of the circulation. Still more conclusive in favour of this view is the fact that from 1895 to 1906 every European patient whose temperature rose to over 103°F died in the reaction-stage. This fact clearly shows the extreme fatality of the toxæmic process, apart altogether from actual hyperpyrexia. Higher temperatures after transfusion, if of short duration, may be recovered from even in Europeans. If, however, serious symptoms persist after the temperature has fallen below 103°F, the toxæmia proves fatal.

Yet we cannot leave our patients to die of collapse without attempting to rescue them. The avoidance of the use of hot water bottles when transfusion is used, and the employment of cold applications if the temperature rises, are indicated, but too much cannot be expected from such measures in such a toxæmia as this. By maintaining a high blood-pressure through replacing the lost fluid, the excretion of toxins through the kidneys will be facilitated. I have also come to the conclusion that all efforts to check the diarrhoea by astringent agents including mineral acids, are not only useless but often injurious when once collapse has set in; indeed, the stools are usually not very copious in the collapse-stage. In the paper I read before the Bombay Medical Congress I suggested that once the collapse had been overcome by transfusion, opium or morphia might be of value in preventing its recurrence. I have now tried these drugs in every other case of a series, but have come to

the conclusion that they did no immediate good, but on the contrary, strongly predisposed to subsequent uræmia, and I now never give them after collapse has once set in. We must, then, recognise the limitation of the value of hypertonic transfusion in the treatment of cholera, but at least this means of treatment has reduced the mortality by about one-half, and affords time for the use of other remedies. At present we have no certain means of influencing the processes going on within the human intestine, but we need not despair of finding some drug of value for this purpose. In the absence of any specific antitoxin of proved value, progress must be looked for in the discovery of some agent capable of destroying the comma bacillus and its toxins within the bowel, and I am not without hope that further advance in the treatment of this terrible disease may be made on these lines before very long.

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NOTE ON 100 CONSECUTIVE CASES OPERATED ON UNDER SPINAL ANALGESIA

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I THINK it desirable to put the following cases on record, as up till now, so far as I am aware, this method has not been very extensively used in India, and from my experience of it I am convinced that it is very suitable to Indian conditions, and also, I think, reasonably safe, and with a certain amount of practice easy to carry out. Moreover, as the method is still on its trial, it seems desirable that the results obtained by those who use it should be very carefully recorded, so that its advantages and disadvantages may be clearly ascertained.

As all these cases were operated on in the ordinary work of mofussil Sadi dispensaries, the notes are necessarily incomplete concerning many details which it would be advantageous to record, but the more important points dealing with the completeness of the analgesia and the after-effects were carefully noted.

The analgesic used was, in 11 cases, 0.05 gm tropococain dissolved in 1 cc normal saline solution, and in the remainder, stovain 0.05 gm, glucose 0.05 gm in water 1 cc, as used by Professor Barker at University College Hospital.

It seems unnecessary to give further details of the technique of the operation, as it has already been most clearly described by Professor Barker in the *British Medical Journal*—within the last two years.

The amount of cerebro-spinal fluid drawn off before injection varied from nil to 14 cc, but I have been unable to assure myself that any difference in after-effects was produced by varying the amount withdrawn.

The anaesthesia obtained generally came on in from 5 to 10 minutes after the introduction of the drug.

I did not notice any difference in the rapidity or completeness of the anaesthesia produced by tropococain or stovain.

The duration of the operations performed under this method of analgesia varied from 10 minutes to an hour and-a-half.

The operations were as follows —

<i>A Abdomen and Pelvis —</i>			
Hysterectomy	1		
Ovariectomy	2		
For tubercular peritonitis	1		
For appendicitis suppuration	1	8	
For parametric abscess	2		
For faecal fistula	1		
<i>B Bladder, Prostate, Urethra, Rectum —</i>			
Suprapubic lithotomy	1		
Lateral lithotomy	1		
Litholapaxy	1		
External urethrotomy	2		
Prostatectomy	2	11	
For haemorrhoids	2		
For fistula in ano	1		
For perineal sinuses	1		
<i>C Inguinal Canal and Scrotum —</i>			
Inguinal hernia	1		
Radical cure of hydrocele	60		
Radical cure of haematocoele	2*	68†	
For elephantiasis of scrotum	4*		
For tumour of scrotum	1		
<i>D Lower Extremity —</i>			
Wiring fractured femur	1		
Wiring fractured leg bones	1		
Wiring fractured patella	1		
Gymn's amputation	1		
Amputation at seat of election (sarcoma, gangrene)	2		
Caries of tarsus	1	13	
Chiselling of bone of leg for chronic periostitis	1		
Removal of inguinal and femoral glands	1		
For cellulitis of leg	1		
For compound fracture, leg bones	1		
For epithelioma, back of thigh	1		
Excision—varicose veins	1		
<i>E Other Operations —</i>			
Scraping of necrosed ribs	1	2	
Removal of epithelioma of loin	1		
Total	102‡		

Of these 100 patients subjected to spinal analgesia, 88 may be claimed as being completely successful, the operation having been performed in its entirety from start to finish under spinal analgesia without the assistance of an anaesthetic.

Six cases may be claimed as partially successful, chloroform having been required towards

the end of the operation. This was generally due to the operation taking longer than had been anticipated, so that the effect of the analgesic wore off. In one abdominal operation pain was felt on dragging the peritoneum and chloroform was administered for a couple of minutes.

Six cases may be regarded as failures. In three cases the failure was complete, and no analgesia was produced. Of these, one (case No. 11) failed because the needle did not enter the sac of the spinal membranes, in another case (No. 75) no cerebro-spinal fluid was withdrawn, and it is doubtful if the sac was entered, and in the third (case No. 95) the drug failed to act, probably due to deterioration from age. In three cases (No. 7, No. 56, and No. 90) an incomplete anaesthesia only was produced.

Thus — Successes, 88 per cent. Partial successes, 6 per cent. Failures, 6 per cent.

Deaths — Five of the cases operated upon died.

One (No. 7) died 18 hours after operation (laparotomy for abdominal obstruction). I am inclined to think that death was possibly in some measure due to the analgesic reaching the upper part of the spinal cord or neighbourhood of the medulla, owing to the head and shoulders being lowered too much during the chloroform anaesthesia which had to be undertaken.

One (No. 9) died 6 days after operation for parametric abscess.

One (No. 46) died two days after operation of prostatectomy from sudden cardiac failure.

One (No. 96) died 31 days after operation on compound fracture of both bones of leg, from septic intoxication.

One (No. 97) died 56 days after wiring of the patella for a compound fracture, dying as result of prolonged suppuration.

In only one case (No. 7) could there be any connection between the analgesic and the unfavourable result—and even in this case cause and effect are doubtful.

After-effects — No after-effects were observed in 27 of the cases treated by spinal analgesia.

Headache alone was complained of in nine cases, and some fever followed the operation in 34 cases, while there were both headache and fever in 24 cases.

Vomiting alone was observed in one case, headache and vomiting also followed in one case, headache, vomiting and fever were combined in two cases, and fever and vomiting without headache in two cases.

Retention of urine occurred in five cases; in one case combined with headache only, with fever only in one case, with fever and vomiting in one case, and along with headache and fever in two cases.

On the whole, however, I am inclined to think that the after-effects were rather less severe than those ordinarily experienced after chloroform narcosis.

* Combined with hydrocele
† Only 66 separate patients
‡ Only 100 patients

The rise of temperature in a large number of cases (occurring especially in and after the rainy season in Fyzabad) appeared to be independent of the condition of the wounds, which, with very few exceptions, healed by first intention. It is difficult to ascribe it to the action of stovain, as fever has not been noticed in the last nine cases in this list and in several more performed in the cold weather in the healthier climate of Simla. Malarial fever was very prevalent in Fyzabad in the last half of 1908, but as the blood of these cases was not examined for malarial parasites, and quinine was not administered, there are no definite grounds for attributing the fever to malaria.

I append a detailed list of the cases —

No	Name and Sex	Age	Disease and Operation	Operation date	Analgesic and dose	Chloroform	After effects	REMARKS
1	Mohan M	16	Vesical calculus Lateral lithotomy	9 3 '08	Tropococain 0.05 grm	No	Headache, prolonged vomiting fever	No local cause for fever
2	Daniel M	12	Tubercular Taisus Symes' Amputation	23 3 '08	Ditto	No	Nil	Tumor very large, multilocular
3	Sukhrani, F	30	Ovarian Cystoma Ovariectomy	8 4 '08	Ditto	Yes, during suturing of wound	Nil	
4	Roshun, M	55	Enlarged Prostate Prostatectomy (Suprapubic)	17 4 '08	Ditto	No	Headache, vomiting, fever	Fever probably due to sepsis
5	Sahib Ali Khan, M	48	Chronic Perostitis Tibia (both) Osteotomy	25 1 '08	Ditto	No	Headache for 24 hours	
6	Sanju, M	26	Hydrocele Eversion of sac Suppurative appendicitis	5 5 '08	Ditto	No	Nil	
7	Suraj Bahi, M	23	Incision, exploration and drainage	1 6 '09	Ditto	No	Nil	Patient very nervous so chloroform was given
8	Naval Kishore, M	22	Tubercular Peritonitis with chronic obstruction of bowel Laparotomy, suture of sigmoid to abdominal wall	4 6 '08	Ditto	Yes, during whole operation	Nil	Died 18 hours after operation of heart failure
9	Wife of Vuma, F	32	Pelvic Abscess opened and drained	12 6 '08	Ditto	No	Fever, vomiting retention of urine, 48 hours	Fever both before and after operation Died 18 6 '08
10	Indar, M	60	Double Hydrocele Eversion of sacs	19 7 '08	Stovain 0.07 grm	No	Headache 2 days, fever 24 hours	Needle failed to reach sac
11	Ganesh, M	40	Hydrocele Eversion of sac	20 7 '08	Ditto	Yes	Nil	
12	Tulsi Ram, M	25	Double Hydrocele Eversion of sacs	25 7 '08	Ditto	No	Headache 48 hours	
13	Baghelu, M	30	Double Hydrocele Eversion of sacs	30 7 '08	Ditto	No	Pain in back, fever 24 hours	
14	Bhagwan Dass M	50	Hematocele (double) Eversion of sacs	1 8 '08	Ditto	No	Fever 24 hours	
15	Sarah F	29	Fibromyoma of uterus Supravaginal Hysterectomy	4 8 '08	Ditto	Yes, during eversion of tumor	Nil	Only a few whiffs of chloroform given when dragging on peritoneum
16	Panohi, M	25	Hydrocele (partly abdominal) Eversion of sac, closure of inguinal Canal	9 8 '08	Ditto	No	Fever for 2 days	
17	Bisheshwar, M	25	Hydrocele Eversion of sac	9 8 '08	Ditto	No	Fever 2 days	
18	Bajun, M	30	Ditto ditto	11 8 '08	Ditto	No	Slight headache	
19	Sheetahl, M	45	Double Hydrocele Eversion of sacs	11 8 '08	Ditto	No	Slight headache, slight fever	
20	Lahlan, M	25	Hydrocele Eversion of sac	12 8 '08	Ditto	No	Nil	
21	Ram Autai, M	30	Ditto ditto	13 8 '08	Ditto	No	Headache, severe for 24 hours fever 1 day	
22	Mulani Das, M	40	Ditto ditto	13 8 '08	Ditto	No	Headache 12 hours	
23	Banki Behari M	24	Ditto ditto	13 8 '08	Ditto	No	Headache 12 hours slight fever 12 hours	

24	Nohai, M	35	Ditto	ditto	13-8 '08	Ditto	No	Headache slight 36 hours, slight fever 24 hours	5 cc of cerebro spinal fluid drawn off
25	Nogeshwan, M	25	Double Hydrocele of sacs	Everson	19 8 '08	Ditto	No	Headache 3 days slight fever	4 cc cerebro spinal fluid drawn off
26	Behari, V	35	Ditto	ditto	19 8 '08	Ditto	No	Headache 24 hours, fever 12 hours	Fever controlled by Quinine
27	Mahadeo, M	25	Ditto	ditto	21 8 '08	Ditto	No	Vomited once, fever 103° F (transient)	
28	Dwarka, M	40	Hydrocele	Everson of sac	21 8 '08	Ditto	No	Fever, transient pain in back 2 days	
29	Jai Pal, M	40	Ditto	ditto	24 8 '08	Ditto	No	Headache 2 days, fever 12 hours retention of urine 2 days	
30	Balbhadar, M	38	Ditto	ditto	24 8 '08	Ditto	No	Slight fever	
31	Jagu, M	40	Ditto	ditto	26 8 '08	Ditto	No	Ditto	
32	Raju, M	50	Inguinal Hernia	Radical cure	27 8 '08	Ditto	No	Ditto	
33	Jagan Nath, M	25	Double Hydrocele of sacs	Everson	27 8 '08	Ditto	No	Fever transient 12 hours	
34	Deo Datt, M	35	Hydrocele	Everson of sac	29 8 '08	Tropococain 0.05 gm	No	Slight headache 2 days, retention of urine 24 hours	11 cc cerebro spinal fluid removed
35	Badal, M	30	Urethral Stricture with Fistula Ext. Urethrotomy (Wheel house)		29 8 '08	Stovain 0.05 gm	No		
36	Lori, M	80	Epithelioma (lone)	Free excision	4 9 '08	Tropococain 0.05 gm	No	Slight fever	Fever apparently due to wound, 4 cc C S fluid drawn
37	Fauz Baksh, M	70	Quio necrosis of tarsus with gangrene Amputation at seat of election		7 9 '08	Ditto	No	Fever 2 days	Gangrene spread to leg 4 cc C S fluid withdrawn
38	Deokali M	25	Hydrocele	Everson of sac	7 9 '08	Ditto	No	Headache slight 24 hours	10 cc cerebro spinal fluid drawn
39	Darbar, M	28	Double Hydrocele of sacs	Everson	7 9 '08	Ditto	No		9 cc C S fluid withdrawn
40	Shiv Balak, M	35	Hydrocele	Everson of sac	7 9 '08	Stovain 0.05 gm	No	Headache slight for 24 hours, fever 103 on 1th day	7 cc C S fluid drawn off
41	Matan M	25	Ditto	ditto	7 9 '08	Ditto	No		10 cc C S fluid withdrawn
42	Khada, M	60	Vesicul Calculus	Litholapaxy	9 9 '08	Ditto	No	Fever 2 days	5 cc C S fluid withdrawn
43	Taj Hosain, M	30	Hemorrhoids	Ligature	12 9 '08	Ditto	No	Headache and fever 24 hours	10 cc C S fluid withdrawn
44	Jibodla, M	25	Hydrocele	Everson of sac	13 9 '08	Ditto	No	fever 2 days	5 cc C S fluid ditto *
45	Ram Ratn, M	25	Double Hydrocele of sacs	Everson	22 9 '08	Ditto	No	Headache slight 24 hours, fever 2 days	3 cc C S fluid withdrawn
46	Ram Din V	60	Hypertrophy of Prostate	Prostatectomy (Suprapubic)	22 9 '08	Ditto	No		12 cc C S removed Patient died suddenly of heart failure on 24 9 '08
47	Suchet, M	28	Double Hydrocele of sacs	Everson	23 9 '08	Ditto	No	Slight fever 2 days	12 cc C S fluid withdrawn
48	Ram Naran, M	30	Ditto	ditto	25 9 '08	Ditto	No	Headache 24 hours, fever 2 days	12 cc C S fluid withdrawn
49	Ram Padmaath, M	30	Ditto	ditto	25 9 '08	Ditto	No	Slight headache	11 cc C S fluid removed
50	Kumta M	20	Ditto	ditto	25 9 '08	Ditto	No		10 cc C S fluid withdrawn
51	Banda, M	30	Ditto	ditto	26 9 '08	Ditto	No	Slight headache, fever 12 hours	11 cc C S fluid withdrawn
52	Ram Kuar, M	18	Ditto	ditto	26 9 '08	Ditto	No	Vomited immediately after operation	12 cc C S fluid removed
53	Bhusai, M	30	Ditto	ditto	29 9 '08	Ditto	No	Headache 3rd day after operation fever 12 hours	12 cc C S fluid withdrawn
54	Ram Bahadur, M	25	Double Hydrocele of sacs	Everson	29 9 '08	Stovain 0.05 gm	No	Severe headache 24 hours, fever 21 hours	11 cc C S fluid drawn off, came very slowly
55	Buj Bihari, M	18	Ditto		30 9 '08	Ditto	No	Headache slight	1 1/2 cc C S fluid drawn off, came very slowly

No	Name and Sex	Age	Disease and Operation	Operation date	Anaesthetic and dose	Chloroform	After effects	REMARKS
56	Indai, M	22	Scrotal Tumor-Removal	5 10 '08	Stovain 0.05 grm	Yes	Nil	Analgesia incomplete 14 cc C S fluid removed
57	Sarju, M	25	Fecal fistula (traumatic) plastic operation	16 10 '08	Ditto	No	Nil	12 cc C S fluid drawn off
58	Bansari, M	60	Elephantiasis of Scrotum Amputation	17 10 '08	Ditto	Yes end of operation	Headache slight 24 hours, fever 102 in evening	10 cc C S fluid withdrawn
59	Bundesari, M	45	Sarcoma foot (fungating) Amputation at seat election	18 10 '08	Ditto	No	Fever slight 3 days	11 cc ditto
60	Roshan, M	30	Double Hydrocele Evulsion of sacs	19 10 '08	Ditto	No	Severe headache 24 hours, retention of urine, slight fever	11 cc C S fluid drawn off
61	Sarju, M	15	Fecal fistula (traumatic) Enterectomy and end to end anastomosis	26 10 '08	Ditto	Yes for suturing wound	Nil	10 cc C S fluid withdrawn
62	Jagan Nath, M	20	Fracture of Femur with bad union Resection and Wiring	30 10 '08	Ditto	Yes towards end of operation	Fever slight	11 cc C S fluid drawn off
63	Ram Lochan, M	28	Hydrocele Evulsion of sac	2 11 '08	Ditto	No	Nil	10 cc C S fluid removed
64	Syad, M	22	Double Hydrocele Evulsion of sacs	2 11 '08	Ditto	No	Nil	11 cc C S fluid removed
65	Ram Nath, M	30	Hydrocele (partly abdominal) Evulsion of sac closure of inguinal canal	3 11 '08	Ditto	No	Nil	12 cc C S fluid removed
66	Ram Harik, M	30	Double Hydrocele Evulsion of sacs	3 11 '08	Ditto	No	Nil	12 cc C S fluid withdrawn
67	Devi Din, M	20	Hydrocele Evulsion of sac	5 11 '08	Ditto	No	Fever in evening	14 cc ditto
68	Fused, M	22	Vesical Calculus Suprapubic lithotomy	5 11 '08	Ditto	No	Headache 2 days	12 cc C S fluid drawn off
69	Rama Din, M	25	Hydrocele Evulsion of sac	9 11 '08	Ditto	No	Fever in evening	12 cc C S fluid drawn off
70	Bhikai, M	35	Ditto	9 11 '08	Ditto	No	Fever in 24 hours	12 cc ditto
71	Siraj Pal, M	25	Ditto	9 11 '08	Ditto	No	Nil	12 cc ditto
72	Kalu, M	30	Ditto	9 11 '08	Ditto	No	Fever in evening	12 cc ditto
73	Ram Charan, M	30	Ditto	9 11 '08	Ditto	No	Ditto	12 cc C S fluid withdrawn
74	Autai, M	45	Hydrocele left, Hydrocele right Evulsion of sacs	10 11 '08	Ditto	No	Fever 2 days	11 cc C S fluid removed
75	Chranjee, M	35	Hydrocele Evulsion of sac	10 11 '08	Failed to reach subdural space	Yes	Fever 3 days	No C S fluid obtained
76	Bhujari, M	30	Ditto	10 11 '08	Stovain 0.05 grm	No	Fever evening	12 cc C S fluid drawn off
77	Jehangru, M	50	Elephantiasis of Scrotum Amputation	14 11 '08	Ditto	No	Slight fever 3 days	10 cc ditto
78	Hira, M	30	Hydrocele Evulsion of sac	14 11 '08	Ditto	No	Fever in evening 100	14 cc ditto
79	Mullu, M	25	Ditto	17 11 '08	Ditto	No	Slight headache and fever in evening	12 cc fluid drawn off
80	Mahabhi, M	30	Ditto	17 11 '08	Ditto	No	Headache (severe) for 2 days, fever 4 days	12 cc C S fluid drawn off
81	Narsingh Das, M	30	Ditto	18 11 '08	Ditto	No	Nil	12 cc ditto
82	Nagesu, M	25	Ditto	20 11 '08	Ditto	No	Fever in evening	10 cc C S fluid removed
83	Ram Naran, M	37	Fistula in ano Incision and scraping	20 11 '08	Ditto	No	Slight headache fever in evening	12 cc ditto
84	Darshan, M	50	Epithelioma thigh and enlarged inguinal gland Evulsion of tumor and glands	22 11 '08	Ditto	No	Fever in evening	12 cc C S fluid withdrawn
85	Sarju, M	25	Hydrocele Evulsion of sac	23-11-08	Ditto	No	Slight headache for 24 hours fever in evening	14 cc Cerebro spinal fluid drawn
86	Ram Bahi, M	45	Ditto	23 11 '08	Ditto	No	Nil	12 cc C S fluid withdrawn

LITHOLAPAXY IN YOUNG CHILDREN WITH SUGGESTIONS FOR A MODIFIED EVACUATING APPARATUS

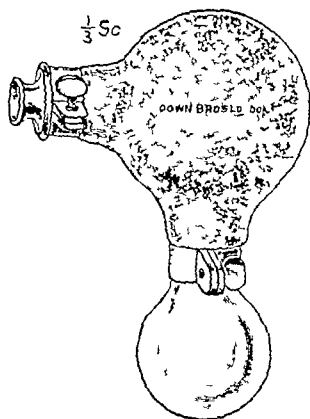
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It is, or should be, the ambition of every surgeon who is called to treat cases of vesical calculus, to reduce the number of cutting operations to a minimum. Especially is this true as regards young children, and anything which will tend to facilitate the rapid as well as save evacuation of debris from the bladder after lithotomy, will help to render litholapaxy the routine operation even to the busy surgeon to whom suprapubic lithotomy may appeal as being quick, and at the same time comparatively free from danger. It has long been a matter of surprise to me that lithotomists should have hitherto been content to use the same evacuator for small boys as for adults, seeing that the organ with which it has to do, the urinary bladder, is so very different in the two cases.

We have had of late at the Peshawar Mission Hospital a not inconsiderable number of cases of stone in the bladder to deal with,—upwards of 80 during last year—and I have felt at last compelled to devise an instrument specially adapted for use with young children.

The two important points in which this modified evacuator differs from the forms in use for adults, are firstly, its size, the rubber bulb



having little more than half the contents of that of the adult pattern of the same model, and secondly, in the greater softness and compressibility of the bulb. For these alterations I would claim the following advantages—

(1) Removal of the risk of over-distension. With an evacuator containing far more fluid than does the bladder of the patient, it needs constant watchfulness to avoid the introduction of a dangerously large amount, especially when, as may often be the case, the preliminary distension of the bladder has been effected by an assistant in the absence of the operator. The rubber bulb does not admit of being graduated, and to compress it partially (emptying it, say, of

only $\frac{1}{3}$ of its contents) is at best a very inaccurate procedure.

(2) It renders possible a far more accurate estimation of the condition of the bladder as regards muscular tone and resilience. With the adult bladder, and the "adult" evacuator, there exists a sort of balancing relation, the elasticity and resistance of the two envelopes being roughly comparable, so that the practised hand forms almost unconsciously an estimate of the contractile power of the bladder wall, as also of the degree of distension to which it has been subjected. In the case of children, however, the resistance of the stiff incompressible bulb of the ordinary evacuator is out of all proportion to that of the delicate bladder wall, so that this important indication is to a great extent lost.

The lighter rubber bulb also leaves the bladder free to do its own work, the fluid being expelled by vital contraction instead of its being, as certainly happens in many cases, sucked out forcibly and roughly by the return of the stiff bulb to its original form after compression.

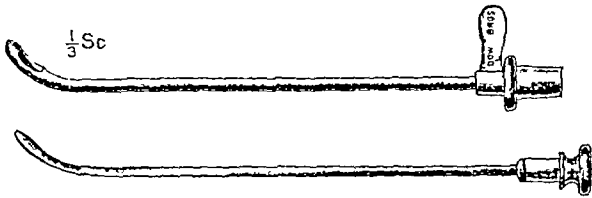
(3) There is a great diminution of fatigue for the operator. He is not only spared the strain of repeated compression of an unnecessarily stiff bulb, but he is able to close his hand freely upon it. A comparison of the two will instantly demonstrate the difference in strain to the hand, between the partial compression of a large stiff elastic ball, and the free emptying of a smaller soft one, especially when in the former case, the element of cautious, measured action is introduced. The former resembles nothing so much as exercising with "grip" dumbbells, and is out of place when dealing with the delicate bladders of young children.

The type of evacuator which I have used for the past 18 years with perfect satisfaction to myself as regards efficiency, simplicity, and cheapness, is that designed by Milton, and it is naturally thus to which I have suggested the modification above described. I see no reason, however, why other models should not be modified in a similar way with equal advantage, it might even be possible in the case of the more expensive ones, to have interchangeable bulbs, for use with adults and children respectively.

The evacuator has been made for me by Messrs. Down Bros., who have carried out my instructions most carefully. There is a further recent improvement which permits of the bulb being detached from the other parts, either for sterilization or when any part may need replacing.

The same makers have also provided me with two further small modifications in our litholapaxy armamentarium, which though simple, are not unimportant. One is a means of quickly and accurately effecting the preliminary introduction of fluid. It consists of a solid-ended flexible, red rubber tube, like a small-sized œsophagus tube, 30 inches in length, and expanding at its free end to fit accurately over the tapering

nozzle of a specially adapted funnel. The most usual methods of distending the bladder are either by a catheter and metal syringe, which I consider unsatisfactory and possibly dangerous, or by a catheter connected with a glass funnel by means of an intervening rubber tube, and it is a constant source of delay and irritation to adjust the two junctions, so as to avoid leakage. The other modification is a reduction in the length of the evacuating catheter. Other urethral



instruments, lithotrites, sounds, silver catheters, staffs, are all made of lengths to correspond with the length of the urethra, for which they are intended, but the ordinary evacuating catheter for a child of two years is of the same length as that for an adult. The reason, of course, is, that the catheter, if of small calibre, may be used not only for children, but also when required for constricted urethra in adults. Apart, however, from the obvious disadvantage of having the catheter about one-third longer than it need be, rendering it clumsy and unwieldy to manipulate, its length may easily be a source of real danger. After working with the short child's lithotrite, adapted as to length to the dimensions of the urethra, one is very apt to forget the greater length of the catheter, and I have myself often been surprised and almost startled on palpating the abdomen, to find how high up the point of the catheter extended. I have indeed known of one instance (doubtless in a case where the vesical walls were abnormally weak), where the bladder was actually perforated by a catheter passed up too far. With an evacuating catheter having a stem equal in length to that of the lithotrite with which it corresponds in calibre, one's estimate of distance remains uniform throughout the operation, and the needed manipulations of the instrument within the bladder can be made more safely and accurately. The above suggestions may seem trivial and commonplace, but to evacuate a calculus 1 inch in diameter quickly through a No 6 catheter, without injuring a small child's bladder or urethra, is a process requiring care and delicacy of touch, and we ought not to be content with the large instruments used for adults, when lighter, smaller ones are available.

I may add that in actual practice the instruments described above have more than fulfilled my expectations regarding them. On the day after they arrived, I crushed a calculus which could only with great difficulty (by forcibly crushing through its soft external layers), be brought within the grasp of the No 6 lithotrite and removed it with the new evacuator and

No 6 catheter with an ease and rapidity far greater than I had experienced before. Since then I have used it on 30 or 40 occasions with equal satisfaction. The sensation of "balance" to which I have referred, and of accurate estimation of the condition of the vesical walls, as with the left hand over the bladder, one alternately compresses and relaxes the soft bulb with the right, is specially satisfactory. The absence as a rule of even a trace of hæmorrhage from the bladder wall is noticeable, due, I feel sure, largely to the fact, that the fluid is expelled from the bladder by the contractions of the latter itself and not by suction from the evacuator.

EXPERIENCES WITH THE LACTIC ACID BACILLUS

By J. R. ROBERTS, M.B., F.R.C.S. (Eng.),
LIEUT. COL., I.M.S.

MORE than a year ago I obtained from Messrs. Martindale some tubes of bacillus *trilacticus* (Bulgar), and it is from these, and cultures of this Bulgarian variety that my experience has been gained. I have always prepared laboratory cultures made so as to eliminate any possibility of contamination, from the tablets on the market. If the intestinal flora are to be affected by the growth in their midst of a lactic acid bacillus, one would necessarily give a preference to the cultures in milk, rather than in the form of tablets by the mouth. Large quantities of the bacillus in their milk medium require to be ingested in order to bring about a permanent lodgment in the colon of the lactic acid bacilli.

The great danger of growing them in milk is that of contamination, and a bowlful of curdled milk, contaminated by large numbers of cocci cannot be anything but harmful. This then limits the manufacture of this curdled milk to expert hands, I have seen very few persons to whom I could trust the process of daily manufacture without the growth suffering contamination, and as a portion of one day's curd is used to inoculate the milk for the following day, the contamination is thus perpetuated. Not merely are the vessels used to be thoroughly sterilised, and the milk boiled and then cooled, but the person doing the inoculation must not be talking at the time, otherwise the medium is well sprayed by cocci, etc., from the mouth.

We issue to medical men from the laboratory here tubes of culture with printed instructions for the preparation of the milk, and in addition we make cultures in malt extract for our local patients, as milk is often a difficulty.

We have examined specimens of *bazar dhar* or curd, this curdling is of course due to a species of the lactic acid bacillus, and we have isolated them by plating from the contamina-

tions, the question of how far these Indian varieties are pure lactic acid forming, and not also butyric acid forming, we have not as yet gone into, but the danger of the latter fermentation will have to be investigated. Yeast cells are seen in bazar *dhar*, and in fact very soon appear in the household preparation. I have also found them in the tubes received from England, in fact, it is very difficult to keep out yeast, but for practical purposes this is of no consequence, as no deleterious results ensue. Yeast cells are not found in great abundance, either the lactic acid bacilli exert some inhibitory action on their growth, or the medium of milk is not quite congenial.

I have fed a number of healthy persons with daily amounts of lactic acid bacillus milk. The effect is difficult to gauge in how far it produces a feeling of well-being, my impression is that the amount of intestinal fermentation is diminished judging by accounts of the amount of flatus passed. The milk is described as "filling," or satisfying, and does diminish in a way the amount of food required by an individual. It is conceivable that, given a healthier condition of the colon due to a lactic acid flora, less rapid evacuation and therefore less waste of food material takes place. I believe that in the grain feeders of India a great deal of intestinal decomposition takes place, probably more so than in mixed feeders. As has been pointed out, the degree of intestinal decomposition plays an important part in the determination of some chronic diseases, such as gout, muscular and aponeurotic rheumatism, etc. However, gout is remarkable for its rarity in India, while diabetes is most prevalent, in how far the intestinal flora determine the appearance of this disease remains to be seen, and how far a lactic acid diet may help in preventing it is another big question. It is remarkable how one sees numbers of cases of high tension pulse and low specific gravity urine among the middle aged or aged grain feeders of this country, from whose dietary alcohol is absent. There is probably some connection between this and intestinal decomposition.

I believe a most important rôle will be given in future to the lactic acid bacillus in the feeding of infants. It is, I think, most necessary to inoculate very early in life the colon of infants with this bacillus by the administration of the bacillary curd. I have in my cases begun in the first week of life by giving by the mouth one dessertspoonful of the curd every morning. This appears to have a remarkable influence in preventing the colicky pains that infants suffer from, and indirectly increasing their capacity for the taking of larger amounts of milk. This effects their growth and nutrition in a decided manner, both in breast and bottle fed infants. After the first month, in the case of the latter, a lessened dilution of cow's milk with water can be carried out, and greater powers of digestion

are shown so that from the fifth month the yolks of two eggs can be added to the milk per day. This yolk is an easy substitute for cream, which, in India, is difficult to obtain free from microbial contaminations. I now advocate among medical men an extended trial of this bacillary feeding of infants, care being taken against contaminations by cocci, etc., of the curds during preparation. Experience has shown a remarkable absence of the green stools noticeable in infants, I dare say due to the inhibition by the bacillus *trilacticus* of the intestinal flora, that produce the derangement and alter the colour of the evacuations.

A wide field remains for this bacillary feeding in the treatment of acute and chronic dysentery and colitis, and also for its employment in enteric fever. Its value in spire remains to be seen. It is, therefore, most necessary for hospitals and nursing homes each to set up the apparatus for the cultivation of *trilactic* bacilli—after all quite a simple affair. We all know the important rôle lactic acid bacilli play in the manufacture of butter. I have suggested the cultivation of good strains in cantonment dairies, and the deliberate inoculation of the cream used for butter-making in these institutions.

Many cases of obstinate chronic constipation, that have been accustomed to the continued use of purgatives, seem, as far as my experience goes, to be remarkably amenable to this treatment. I can therefore strongly recommend it for such cases. I have been disappointed by its use in cases of chronic mucus colitis, a case of this condition fed entirely on bacillary curd resulted in the stools becoming almost odourless, but the effect on the disease was not marked.

A Mirror of Hospital Practice

CASES OF MYIASIS IN NORTHERN INDIA

BY A CAMERON, M.B. (LOND.),

CAPTAIN, I.M.S.,

Jhelum

DURING the last twelve months, two cases of "maggots in the nose" have been under my treatment, and as this truly loathsome affliction appears to be by no means rare in the Punjab, and to be usually regarded as caused by the common household blue-bottle fly, I venture to describe my experience, in the hope that others may describe theirs, and some reliable and definite information on the subject may be the result.

Case I—A healthy-looking sepoy of the 57th Rifles was admitted into the Regimental Hospital at Peshawar on the 9th October 1908, suffering from repeated attacks of epistaxis, the

blood all coming from the right nostril, as I could not obtain a satisfactory view of the nasal fossæ with the speculum available, I plugged the anterior and posterior nares, having first washed out the intervening cavity with a solution of adrenalin. This stopped the hæmorrhage for the time being, but on the following day, when the plugs were being removed, several maggots were expelled from the nostril, and the man complained of pain in the nose and headache. There was also slight fever.

I had at the time, no doubt, that these were no other than the larvæ of the common blue-bottle fly, and I syringed out the right nasal cavity with 1 in 1,000 perchloride of mercury solution, giving orders that this treatment should be repeated at four hourly intervals.

By this method about 40 larvæ were expelled during the next twenty-four hours, but there was still a bloody discharge from the right nostril, rather evil smelling, and there was a good deal of puffiness about the eyes, and bridge of the nose. The patient was in great distress, partly from the revolting nature of the complaint and partly from actual pain, indeed, I gave him a hypodermic injection of morphia at night. As it was evident, from the pain and foul discharge, that there must be a considerable amount of ulceration or loss of tissue going on inside the nose, I examined one of the larvæ more carefully and came to the conclusion that it was the larva of the *Lucilia hominivora*, or *macellaria*, a parasite common in parts of America, and recorded as also occurring in India.

I syringed out the nasal cavity with turpentine, which I was told was the usual treatment adopted, but I only succeeded in expelling about eight or nine larvæ, these being quite lively and apparently not much affected by this powerful parasiticide. The next morning the patient's condition was little, if any, better, although some sixty or seventy larvæ had been expelled from his nose during the previous twenty-four hours.

By way of obtaining a more efficient remedy, I experimented with the larvæ, putting one or two living larvæ into each of several small crucibles, filled to the brim with the following fluids—

- (a) Perchloride of mercury—1 in 500 of water
- (b) Pure oil of eucalyptus
- (c) Carbolic acid—1 in 40 of water
- (d) Oil of turpentine
- (e) Pure chloroform

Each crucible was covered over, flush with the surface of the fluid so that the larvæ could not float on the surface.

The larvæ, that were placed in chloroform, curled up and died instantaneously, but those placed in the other fluids were all living and moving about vigorously at periods of from thirty to seventy minutes after their immersion, although

all died eventually. This convinced me that the four first mentioned fluids were not the most satisfactory ones, and I thereupon had the man held with his head down, and with a small glass syringe injected the following mixture into his nostril—

Chloroform 1 part
Rectified spirits... 2 parts

The effect of this measure was to cause a burning sensation in the man's nose and a sharp attack of sneezing, which resulted in the rapid expulsion of twenty-five larvæ, all stone dead.

Although a slight feeling of burning remained for some hours, there was almost immediate relief of the man's distress and the discharge ceased at once, no doubt due to the astringent effect of the alcohol. No more larvæ were expelled and the swelling of the face had almost disappeared on the following morning.

The man had lost much flesh and strength during the first three or four days after his admission to hospital, but rapidly recovered and was discharged quite well.

I put some of the larvæ into a perforated tin box, along with a piece of raw meat, and in about ten days a fly had hatched out. It was not unlike the ordinary blue-bottle, but smaller, being $\frac{3}{4}$ inch long—the head was light-brown, and the thorax and body blue-green, the wings being colourless and transparent. The larva was $\frac{3}{4}$ inch long, white with eleven spiral rings, bearing cilium-like hairs, there were two tenaculum like processes over the mouth.



The larva
(actual size)



The fly
(actual size)

Case II—A sweeper, was admitted to the hospital, of the 13th Bengal Lancers, Jhelum, for pneumonia on 1st September 1909. There was extensive consolidation involving the greater part of the right lung. When he had been in hospital for two or three days, the hospital assistant informed me that he had been passing maggots from his left nostril, for the preceding twenty-four hours, and that he had been syringing out his nose with turpentine, and brought away a good many live larvæ. He told me that he had several times seen this treatment adopted before, and with success.

I told him to continue this treatment, which he did, and succeeded in expelling a few more larvæ, but nevertheless the man was in a much more distressed condition on the following morning and his face presented a striking appearance, with great œdema round the eyes, and at each side of the bridge of the nose—also over the lower part of the forehead. There was a stinking discharge from the left nostril.

I syringed out the nasal cavity as before with chloroform and rectified spirits, and as before brought on a violent fit of sneezing, which resulted in the expulsion of thirty or forty larvæ, all quite dead. Subsequently one or two more dead larvæ were expelled, and on the following morning there was only slight swelling and the distress and foul discharge had ceased. The pneumonia ran a moderately severe course, but his temperature fell by crisis and he is now convalescent.

TWO CASES OF PNEUMOCELE OF THE LACHRYMAL SAC

BY R. H. ELLIOTT, M.D., B.S. (LOND.), F.R.C.S.,

MAJOR, I.M.S.,

Ophthalmic Hospital, Madras

[The following two cases were admitted into the Government Ophthalmic Hospital, Madras, within a month of each other.]

Case No. 1—Pneumocele of Lachrymal Sac

Joseph, æt 45, a male Hindu of no caste, by employment an agricultural labourer, was under treatment in the hospital for Lachrymal Obstruction and Dacryocystitis. On 21st July 1909, the right lachrymal sac was being removed under chloroform, when it was observed that with each stertorous expiration the left sac was blown out like a bellows, falling back again with the inspiratory effort. A week later when the right side had healed soundly, the condition of the left sac was farther examined. The canaliculi were impervious to fluorescin dropped into the conjunctival sac, the puncta were in good apposition. With great difficulty the inferior canaliculus was dilated up to admit a No 3 Theobald probe, the punctum itself was constricted, and there were two other strictures one ½ way along the canaliculus and another at the entrance into the sac, the superior punctum was completely closed. When the patient held his nose, shut his mouth and expired forcibly, the sac was markedly and easily dilated just as it was under the anæsthetic. He was quite unaware of the condition and thought nothing of it, it has never given him any trouble, he has never had any trouble in that eye, and there is no evidence of old granular ophthalmia. The patient's nose is markedly deviated to the right of the mid-line of the face, the tip of the organ being completely to the right of a line drawn from the glabellum to the space between the central incisors. The septum nasi is deviated so far to the left as (in conjunction with the nasal deviation) to block the left meatus entirely, greatly widening the right nostril. In quiet respiration the movement of the right ala nasi was marked, whilst the left made scarcely perceptible movements.

On 28th July 1909, the lower left canaliculus was slit up and the passage of probes (No 10 Theobald) commenced. The patient became so

restless that probe treatment was abandoned and the sac was removed on 17th August 1909. The sac was empty, its walls were thin, and closely adherent to the surrounding parts, thus making removal difficult. A No 12 Theobald probe passed very easily down the duct. The patient made an uninterrupted recovery and is now awaiting the extraction of a cataract from the eye. It was for the cataracts in both eyes that he originally came under treatment.

Remarks—In the absence of all history, it is impossible to say how long the condition has lasted, or what first gave rise to the obstruction of the canaliculi. The obstruction above and the free wide passage below would appear to have determined the very unusual condition found. Presumably the valves of Bianchi, Taillefer and de Béraud are non-functional, whilst that of Rosenmüller is the seat of a stricture.

Case No 2—Musical Pneumocele of Lachrymal Sac

S Sankaralinga Naidu, æt 72, a male, caste Hindu, was admitted to hospital on 11th August 1909, with a cataract in his left eye, and complaining of a feeling of itching over his left lachrymal sac and of a musical noise produced from time to time, when the dilated sac is pressed upon. He first noticed this noise 6 months ago, having discovered it accidentally, he did not appear to attach much importance to it, as though he made a good deal of it later, he had not mentioned it, until after its discovery during a routine examination of the adnexa of the eye, preparatory to his admission for the extraction of the cataract. He became frightened, possibly at the interest the phenomenon evoked, and refused to stay in hospital, giving the usual excuse that a relative was dying and he would 'certainly return soon for operation'.

When the patient closed the nose and mouth and expired forcibly he could easily distend the lachrymal sac, which could then be seen to bulge markedly in the usual situation of a distended sac. If the sac were then pressed on, it emptied itself through the nose, and at the same time a distinct musical note was heard closely resembling that of the old-fashioned child's toy on a squeezable stand. Sometimes by managing the pressure this note could be got a number of times in succession, if intermittent pressure were employed. The noise could be easily heard by those standing round. The canaliculi were impervious to fluorescin solution instilled into the conjunctival sac. To make sure that no air escaped through the puncta, the patient was laid on his back, and the orbital fossa was filled with water, on pressure on the sac the noise-phenomenon was obtained, but no bubbles of air escaped through the water.

The septum was straight, and the nasal cavities appeared to be capacious and healthy.

The second case resembles the first, save in the noise produced on manipulation. The resemblance of the note to that of the toys of children of the last generation suggests that at one of the valves guarding the lachrymal passages there is a slit-like arrangement, permitting free ingress of air, but thrown into vibration by the current of air during egress, a reed-pipe arrangement in fact.

The only other case of Pneumocoele of the sac which I am aware of is that published by Metais in *Bullet Mem de la Soc française d'Ophthalmologie*, T. IV, page 103, October 1907, and reviewed by the Ophthalmoscope on page 374 of the 1908 Vol. It is possible many more may be on record and the condition may be commoner than I think. The fact that the two cases came under my notice within a period of one month and that both came for the extraction of a cataract in the affected eye, thinking nothing of the lachrymal condition, strikes one as being one of the many interesting coincidences of surgical practice.

NOTES OF SEVEN CONSECUTIVE CASES OF CYSTS, OPERATED ON AT LADY AITCHISON HOSPITAL

By MILDREDE SIALEY, M.B.,

Lahore

Case I—D, aged 35. Eight children. Amenorrhœa 10 months, followed by slight hæmorrhages, and attacks of acute pain and fever during the past month. Patient emaciated. Temperature 100° F each morning. Urine contained albumen. The abdomen is occupied by a huge tumour extending under the costal margins.

Operation—On opening the abdomen the bluish cyst wall presented, but it was found to have ruptured in two or three places where the wall was thin, and a certain amount of thick yellow grumous material was found free sticking about the intestines and in the pelvis.

The tumour was a multilocular (simple) oophoritic cyst (Bland Sutton), containing numerous radially arranged small cysts, and with extensive adhesions to the bowel. As little of the contents would escape by the trocar, the cyst was broken up, and the gelatinous and semi-solid contents removed with the hand—till the remains were small enough to be withdrawn from the abdomen.

The pedicle was found to be twisted completely round from left to right. After suturing with linen thread and cutting this, the abdomen was thoroughly flushed out with hot salt solution and sponged dry of all debris, though some of the sticky material could not be wiped off the intestines—and was left.

Convalescence was only interrupted by an attack of German measles, and patient went out after five weeks "fat and well."

In this case, the twisting of the pedicle must have occurred long before, while the cyst was small and moveable—and it is remarkable that in spite of the rupture of the cysts and escape of its unpleasant looking contents, there were so few signs of peritonitis, the adhesions were easily separated.

Case II—B, aged 36. Five children. History of amenorrhœa for two months followed by hæmorrhage (slight), very acute pain, and difficulty in passing urine. Fever ranged daily from 100° F to 102° F.

An elastic tumour completely filled the pelvis, and extended nearly up to the umbilicus.

It was rapidly enlarging even in the two or three days after admission into hospital, and was diagnosed as a probable ectopic gestation.

Operation—An incision was cautiously made, and at once a rush of dark thick blood proclaimed it a blood cyst. The sac was found full of clot and blood, and as its front wall was adherent to the peritoneum, it could be gently douched out. Besides much clot and debris, a $2\frac{1}{2}$ months fetus was thus removed. This was flattened in profile from being crushed in a clot, but was otherwise perfect. Hæmorrhage was free. When all the contents that would come away easily had been evacuated, the cavity was packed with iodoform gauze. No placental tissue could be found, and this is the advantage of dealing with such a case in its early stages.

There was a good deal of hæmorrhage for a few hours—and the temperature remained high for 10 days.

The cavity rapidly contracted, and the patient left the hospital with a normal temperature four weeks later.

Case III—M, aged 25. No children. This patient was suffering from continuous fever (100° — 102° daily), and was so weak, she was unable to walk at all.

The abdomen was occupied by an enormous tumour, semi-solid. It was found to spring from the right broad ligament, but had pushed its way behind the uterus, and was found to have extensive adhesions to bowel and peritoneum.

Operation—The adhesions were broken down, some of them had to be cut off the bowel, and the remaining tags gently scraped and left behind.

About eight pints of greenish yellow fluid were evacuated, but the large solid portion of the tumour had to be delivered outside. It weighed 15 lbs. 4 oz., and its very wide pedicle presented great difficulty. Eventually it was tied in three portions, each linen ligature being interlocked with its neighbour for safety.

The patient was greatly collapsed (though the operation only lasted 45 minutes), and the temperature remained high for a week. She walked out of the hospital well in five weeks time.

It was proved by careful examination that the tumour was a "multilocular oophoritic adenoma"

Bland Sutton classifies multilocular oophoritic cysts into (1) simple, (2) adenomata, (3) dermoid

Simple unilocular may be parovarian cysts, but in that case the ovary is found attached to the cyst, and the Fallopian tube stretched over it

Case IV—T B, aged 30 This patient had an elastic tumour, the size of a foetal head presenting in the perineum, within the right ischial tuberosity, there was also a similar swelling (said to be quite recent) in the right iliac region above Poupert ligament, extending nearly up to the level of the A S spine

Diagnosed as an abscess, it was opened in the perineal portion, when clear straw-coloured fluid was discharged Immediately it was noticed that the iliac portion also disappeared as the fluid was all evacuated The cyst wall was carefully dissected from the skin and pelvic connections, and drawn down as far as possible into view The cavity was swabbed, with Lin Iodi (B P), the 'neck' tied as high up as possible, and cut

The stump remaining was as thick as a little finger This was pushed well up and a drainage tube left in the long tract

The extensive pelvic wound healed slowly but surely—though convalescence was delayed, by attacks of malarial fever (an old trouble)

After two months, the condition was excellent, and no sign of the cyst remained

The question arises what was the origin of this cyst, which occupied a large part of the pelvis, pushing the uterus over to the left? The extension upwards was a secondary development

At this hospital, we have had to deal recently with four such purely pelvic cysts, containing similar clear yellow fluid only, and all easily obliterated when operated on per vaginam

The fluid is alkaline, and does not set or thicken much on exposure to air, has no hooklets nor debris

Case V—N, aged 30 Two children, one abortion The patient complained of a tumour of the abdomen which caused some pain, temperature about 100° F in the evenings Had recently "aborted"

The abdomen showed an elastic tumour adherent to the abdominal wall and extending from the umbilicus to the pelvis There seemed to be no connection with the pelvis as far as could be discovered

Operation—On incising the mass it was found to contain thick dark blood, soft clots and debris No ovum was discovered After washing out much of the contents the finger could feel a smooth walled "cyst," prolonged out to the right and backwards more than to the left, and dipping down towards Douglas' pouch behind the uterus But apparently the sac was self-contained merely, being firmly anchored to the abdominal walls in front There was much oozing, as if from the sac of an extra-uterine gestation.

No attempt was made to dissect it out but after drying, Lin Iodi was applied, and the cavity stuffed with gauze

The cyst slowly contracted, but the discharge remained bloody for some two weeks

Patient left hospital after two months perfectly well

Case VI—K B, aged 40 Had had 5 children

Suffering from an abdominal tumour for six years—not painful

Patient thin, but in fair condition, except for daily fever

Operation—The tumour was found to be a multilocular cyst, right ovarian It had ruptured in two places, and quite a quantity of the sticky yellow contents was found in the abdomen The pedicle was twice twisted With the finger many daughter cysts had to be broken up and removed before the mass could be delivered out of the abdomen There were no adhesions and no signs of abdominal peritonitis, though the old ruptures of the cyst wall were purple and unhealthy looking

The pedicle was untwisted and tied with linen thread The solid remainder of the tumour weighed 4½ lbs, but a large amount had been broken up The abdomen was flushed and cleaned thoroughly The temperature rose to 100° F for three days after the operation, and patient left hospital strong and well in a month

As in Case I, we had here a twisted pedicle and a ruptured cyst, but no symptoms to show what had occurred

This cyst was again a simple multilocular oophoritic cyst, the solid portion showing no adenomatous structure

Case VII—M, aged 25 No children Much pelvic pain was complained of Examination showed a small cyst to the right of the uterus and about the size of a foetal head The uterus was pressed over to the left of the pelvis

Operation—Laparotomy was performed and revealed a thin walled cyst deep in the right pelvis with the Fallopian tube (about 6 inches long) running over its surface

The ovary was also present The cyst (a unilocular parovarian) was shelled out of its peritoneal bed and tapped with the trocar, pale clear fluid escaping

The pedicle containing vessels and the Fallopian tube was tied, and the ovary attached to the side of the cyst was removed with it The edges of the cut peritoneum were brought together and sewn up with fine silk over the wound in the pelvis whence the cyst had been removed

These 'parovarian' cysts are formed between the layers of the meso-salpinx and enlarge upwards, pushing the Fallopian tube before them They may grow to an immense size and are often very difficult to deal with unless it is recognized that they must be *shelled out* of the peritoneum The presence of the ovary and long Fallopian tube are diagnostic

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NOVEMBER

THE NEW FACTORY ACT

II—THE CERTIFICATION AND EMPLOYMENT OF CHILDREN

THE certification of children is perhaps the most important, as it is certainly the most onerous of the Medical Inspectors' duties. This subject is dealt with in Chapters II, IV and V of the new act.

Chapter II lays down the rights and duties of Inspectors and Certifying Surgeons. Clause 6 of this chapter directs the Certifying Surgeon to examine any persons (*ie*, children) desirous of being employed in a factory, either at their own request or at that of the Manager, and to grant certificates, stating their age, as nearly as it can be ascertained, and their fitness for employment. Clause 7 provides that the Certifying Surgeon may authorise any qualified medical practitioner to exercise these functions, pending his own next visit, and may revoke such authorisation.

Most factories in Bengal keep a dispensary with a qualified native practitioner, either of the Assistant Surgeon or of the Hospital Assistant class, in charge, to give medical attendance and medicines to their hands. Presumably these officers will be appointed as deputies to examine children before first admission, pending the next visit of the Certifying Surgeon.

The order that the certificate must certify to fitness for employment, as well as to age, is new, as also is the clause allowing the Certifying Surgeon to depute temporarily his powers of certification. It is worthy of note that such deputation is temporary only. A certificate given by the deputy holds good only until the next visit of the Certifying Surgeon. Should the child thus certified not be produced before the Certifying Surgeon at his next visit, the certificate is no longer valid.

Certification being made compulsory, the fee of four annas per head at present chargeable for certification—a fee which in many cases, we believe, is not charged, is abolished, by omission from the Act.

The certification of children's ages must always be guesswork, more or less. There is no trustworthy test of a child's age. Hence,

the proviso that physical fitness for employment must also be certified.

The most important of the rules about children are contained in Chapter IV. Hours of employment and holidays. We quote clause 24 in full—

24 With respect to the employment of children in factories the following provisions shall apply—

(a) No child shall be employed in any factory unless he is in possession of a certificate granted under section 6, showing that he is not less than nine years of age and is fit for employment in a factory,

(b) No child shall be employed in any factory before half past five o'clock in the morning or after seven o'clock in the evening,

(c) No child shall be employed in any factory for more than eight and a half hours in any one day,

(d) No child shall be actually employed in any factory for more than seven hours in any one day.

Para (a) The employment of children under nine years of age was forbidden by the Factory Act of 1891, but that Act did not stipulate that the child should obtain a certificate before it actually began work. This proviso, and also that with regard to physical fitness, are therefore new.

Para (b) The rule forbidding children to be employed before 5-30 A.M. or after 7 P.M. is also new. Hitherto children could be employed during all the working hours of the mill, provided that no individual child worked more than seven hours.

Paras (c) and (d) The rule that no child shall be employed for more than eight and-a-half hours in any one day, and the rule that no child should be actually employed for more than seven hours in one day, seem mutually contradictory. We presume that the intention is, that no child shall be employed in the factory for more than $8\frac{1}{2}$ hours, from the beginning of its first, to the end of its second shift of work, and that during these $8\frac{1}{2}$ hours he shall not be actually at work for more than seven hours.

Chapter V, textile factories, clause 32, runs as follows—

32 No child shall be actually employed in any textile factory for more than six hours in one day.

It appears, therefore, that children may be employed up to seven hours in non-textile factories, though only up to six hours in textile factories. The Act is intended to apply chiefly to textile factories. In paper mills, children may still work the longer hours.

In jute mills, as a rule, a squad of working children contains a number considerably larger

than the number that can find room to work at one time. Therefore, the children get a good deal of time-off, even during the hours of their nominal working shift.

Clause 26 runs as follows —

26 No woman or child shall be employed on any day in any factory who has to the knowledge of the Manager already been employed on the same day in any other factory.

This is a necessary prohibition, but one which, in the case of children, it will be very difficult to enforce. It is not likely that any Manager would knowingly employ a child to work double shifts, two shifts in his own mill as well as two shifts in another mill. The child's labour, under these circumstances, would be worthless. But no Manager could possibly recognise all the children working in his own mill, much less those working in neighbouring mills, and it is not unlikely that in some cases children do work, or rather idle through, such double shifts, probably paying about half their wages in each case to the *sardar* in charge of the squad, to wink at the abuse.

Chapter VIII, penalties and procedure, contains three clauses which are of importance in connection with children.

Clause 43 (a) imposes a penalty of two hundred rupees upon any person who wilfully delays an Inspector, fails to produce a register on demand, "or conceals or prevents or attempts to prevent any person employed in a factory from appearing before or being examined by an Inspector."

No obstruction need be anticipated on the part of the Manager or of the European Assistants, who, as a rule, are usually quite ready to give any reasonable assistance. What may be anticipated is that an uncertified child, on seeing an Inspector, or on being sent for in order to be produced before an Inspector, will run away. It is impossible to chase a child about a factory full of machinery. In such cases, the child may have been warned by the *sardar* in charge of a gang of children, to run and hide. But it would not be possible to prove this, which after all is only a probable deduction, against the *sardar*. It would be manifestly unjust to fine the Manager for an offence which he had not only not committed, but which he had probably tried to prevent. And to impose a fine of two hundred rupees on the child itself (if caught), would be simply a *reductio ad absurdum* of the whole penalty.

Clause 44 tries to prevent personation, by imposing a fine of twenty rupees on any one, who knowingly uses or attempts to use a certificate granted to some one else as if it had been granted to himself, or who allows another person to use a certificate granted to himself. No alternative to fine, such as whipping or imprisonment, is imposed. It is difficult to imagine what penalty a Court could inflict upon a child convicted under this clause. To fine it would be useless, for it has no money with which to pay a fine, and no alternative to fine is imposed.

Clause 45 provides that if a person (child) over the age of six be found in any place where manufacture is going on, that person shall be deemed to be employed, until the contrary is proved.

This clause will cause trouble. In every factory in which women are employed, many young children will be found. The women bring their children with them to the factory, indeed they have nowhere else to leave them. As long as the children thus brought are babies, unable to walk, they are not much in the way, and cannot of themselves get into mischief. When they are older, and able to go about by themselves, they wander away from their mothers, to where the working children are employed, and there play at working, carrying about one or two bobbins, and so give trouble to both Manager and Inspector. Besides which, there is always a danger of their meeting with accidents. It would be much better if all children between two and nine could be kept out of the mills, but without the children the women would not come to work.

Some years ago, the Manager of one large jute mill tried the experiment of starting a crèche, where the women employed in the factory could leave their small children, during their working hours, in charge of other women paid by the factory to look after them. But the mothers declined to make use of it, and so the project fell through.

CUBAN MEDICAL DEPARTMENT

THAT in Cuba the Medical Department is doing good work may be judged from the reports issued by the National Sanitary Department, of which we take the annual report for 1907 for the republic, and the monthly report for January 1909 for the municipal area of Habana.

Of a total mortality of 34,000 only 594 deaths were due to causes "not specified or ill-defined". In the Bacteriological Institute 2,693 specimens sent were examined with the result that a positive result was obtained in 305 cases of tuberculosis, 515 of diphtheria, 44 of typhoid, 1 of influenza, 11 of streptococcus-infection, 36 of staphylococcus-infection, and 27 of gonorrhoea. In addition 1,971 phials of anti-diphtheritic serum were sent out from the institution, and 272 doses of mallein, and 9 of tuberculin, while 57 dogs were examined as to their being rabid. In the histological section 608 specimens were reported on. In the Chemical Institute 266 specimens of wine were analysed, and of these 83 were found to be "bad"—32 having been treated with sulphates, 17 artificially coloured, and 49 having an excess of alcohol or of water, 1,557 specimens of cow's milk were examined, of which 1,126 were found to be of good quality, 393 to be "bad," and 38 merely adulterated, 37 specimens of water were examined, of which 14 were classified as "bad." In 210 judicial cases, 535 articles were examined, among which were 103 articles suspected to have been stained with human, and 2 with other than human blood. On 35 articles the presence of human blood was certified, *i.e.*, the serological test had given a positive result as to the source of the bloodstain.

In Habana 2,100 specimens of milk were examined during January 1909, of which only 3.10% were found to be "bad" as against 10.71% in January 1908. 985 school children were inspected in 7 public schools. Of commercial establishments medically inspected during the month, 523 visits were paid to dairies, 134 to cow-houses, 161 to butchers' shops, 9 to sweet-meat sellers and 5 to barbers' shops.

Very evidently Cuba, which has but yesterday passed out of the tutelage of the United States, is in the van of progress as to her public Medical Department.

WIDOWS' PENSIONS

A RECENT order by the Secretary of State* makes an alteration in the terms of subscription for widows' pensions, by officers of the I M S, which is of considerable importance to the senior

members of the service. Officers of the I M S will, in future, like officers of the Indian Army, be classified for this purpose by length of service, not by rank, except that Surgeon-Generals will be allowed to subscribe in the first class.

Hitherto all officers of the I M S, over 25 years' service, have had the option of subscribing in the first class, an option which will no longer exist, in the case of those who hereafter complete 25 years' service. As regards those officers who have passed 25 years already, they have already had the option of increasing their rate of subscription to that of Class I, and, whether they have exercised that option or not, they have no cause of complaint. Those who have elected to pay the increased rates of Class I will continue to do so. But in future the highest rate of pension which the widow of an officer of the I M S can draw, will, practically, be £130 a year. Only the very few officers who reach the rank of Surgeon-General will be able to provide for their widows the highest rate of pension, £160 a year.

Current Topics.

THE ETIOLOGY OF BERI-BERI

In the Sixth Supplement for 1909 of the *Archiv f. Schiffs und Tropenhygiene* is published the paper, read by Schaumann, at the recent meeting of the German Society for Tropical Medicine, on the Etiology of Beri-Beri. Following Axel Holst he experimented on pigeons at first. To various series he gave, as their sole food (1) rice-pap 60 gm made by boiling rice in twice its weight of distilled water for two hours, (2) rice-pap with 1.4 gm and after eight days 3 gm of dried egg albumin per bird per day, (3) rice-pap, with 3 per cent of mixed mineral salts—the salts were those, save the phosphates, that are found in the ash of vegetable seeds, and were given in nearly the same proportions as present in the ash, (4) rice-pap + 1 gm of biphosphate of lime per bird per day, (5) rice-pap + 1 gm of glycerophosphate of lime, (6) rice-pap and increasing quantities of albumin metaphosphate, (7) rice-pap and 1 per cent nucleic acid obtained from yeast, (8) rice-pap and 1½ per cent nucleic acid. In all series the pigeons lost weight, became paralysed, and died within 33 days.

He then fed two series on rice-pap to which, when it had cooled, there were added per bird 2 gm and 1 gm respectively of dried yeast that had been sterilised. The birds thrived on this diet.

* Secretary of State's Despatch No I, of 30th April 1909, Director General, I M S, Memo No 5340, of 30th June 1909, Inspector General of Civil Hospitals, Bengal, Circular No 65 of 19th July 1909.

Another series received 75 gm of rice-pap with 2.5 gm of wheat bran per bird per day, the birds' weights remained stationary for 14 days and then fell, but no paralysis occurred and the birds were alive and well after a month of this diet. When the quantity of bran was increased to 5 gm daily, the birds' weights remained stationary in 3 cases, and the fourth bird gained 20 gm in fourteen days. When the quantity was raised to 7.5 gm, two of the pigeons had after a week regained their initial weight, one was well but escaped before it could be weighed, while the fourth had lost weight but showed no signs of paralysis.

To the birds which showed signs of paralysis were given Katjangidjoe beans, yeast, and nucleic acid made from yeast. One bird A, which was so paralysed as to be unable to feed, was given 3 gm of uncooked beans, and within 24 hours was able to move with ease, a second dose of 3 gm appeared to bring about a perfect cure. Another paralysed pigeon was treated with 3 gm of rice that had been cooked and then dried, with 1 gm yeast, and recovered. When fed with cooked and dried rice to which was added nucleic acid, paralysed birds were manifestly benefited for a time, so as to be able to run and fly about. On examination pigeon A showed marked degeneration, going on to complete destruction, of about half the nerve fibrils of its sciatic nerves, while a pigeon that had been fed on Katjangidjoe beans for 40 days presented nothing abnormal in its nerves.

On feeding rabbits with maize alone, Schaumann caused in every case paralysis and death, while rabbits that were fed on maize *plus* a little yeast remained healthy. Guinea-pigs that were fed solely on oats or rice became paralysed in the hind quarters, and died within 3 weeks. A monkey that was fed on the rice-pap alone became very emaciated, and died on the 74th day. It did not, however, show much loss of power in the legs. Dogs, cats, and rats that were fed on minced meat, which had been mixed with a 20 per cent solution of sodium carbonate and heated in the autoclave to 120°C to destroy the nucleo-proteids, the excess of alkali being then neutralized with dilute hydrochloric acid, at first gained weight [probably owing to ingestion of the sodium chloride formed by the neutralization of the alkali], then lost weight, became completely paralysed and finally succumbed.

Schaumann concludes that nucleo-proteids are absolutely necessary for the organism, and that their absence gives rise to degeneration of the nerve-fibres, polyneuritis, etc. In several cases of "sailing ship beri-beri" it was found that the food-stuffs on board were mouldy. Moulds have a great avidity for phosphorus, and to obtain this they break up the nucleo-proteid molecules. He insists on the greater phosphorus content of "cured," i.e., ordinary rice made from paddy, compared with "un-

cured" rice such as Burma rice which has its entire endosperm removed during the process of husking—75.4 per cent as against 32.3 per cent, and he believes that ordinary rice is much less apt to cause beri-beri than is Burma rice.

These results are of the very greatest importance to us in Calcutta at the present time. Believing as we do that the so-called epidemic dropsy is nothing more than a slightly modified form of beri-beri—one in which the cutaneous nerve-fibres are more involved than the deeper muscular branches, with an accompanying early increase in reflexes, vaso motor paresis, areas of cutaneous hyperæsthesia, etc.—the question of rice as a causative agent must be taken into consideration.

It is high time that investigations on somewhat similar lines to those given above were undertaken, and that facts concerning the incidence of the disease, the classes most affected, the staple diet of those classes, the analysis of such diets, were begun. We are firmly convinced if such an enquiry were properly carried out that much light would be shed on the etiology of this obscure affection. It is very suggestive in the light of Schaumann's results that the present outbreak in Calcutta would appear to be more prevalent amongst the well-to-do classes and is not nearly so common amongst the working classes. The working man buys and consumes the cheapest rice he can obtain which is the new home-grown product, whilst the richer classes prefer rice that has been stored for years before using it as food.

The demand for old rice is great, and the better paid classes will gladly give up to twenty rupees a maund for really good old rice. What is more likely than that this old rice has had the nucleo-proteids largely destroyed by moulds and thus brought into the condition that Schaumann believes will cause beri-beri.

THE "LANCET" ON THE INDIAN MEDICAL SERVICE

THE following extract from the educational number of the *Lancet* on the prospects in the Indian Medical Service will be found of interest at the present time —

That there is now no competition for commissions in the Naval Medical Service and no keen competition for those in the Army Medical Corps or the Indian Medical Service seems undeniable, and this is the more unfortunate a position, inasmuch as fewer men are now entering the medical profession as a whole. It is no longer easy for all hospitals to obtain suitable residents, while assistants are scarce and even junior partners are not to be found directly they are wanted. The services will therefore have to increase their popularity.

In the Indian Medical Service the introduction last year of the increased pension (£600 per annum) after 27½ years' service was an

important concession, there is still, however, a block in promotion, administrative rank which used to come after 26 or 27 years being now generally deferred until after 30 years' service, limitation of the period of service in the administrative rank (as in the army generally) would probably be an improvement. The order that an officer of the Indian Medical Service must refer the question of his fees when above a certain low limit to the civil authority is most objectionable—it might necessitate the violation of professional secrecy and it is professionally degrading. The neglect of the rule that the office of Principal Medical Officer to His Majesty's Forces may be held by an officer of the Indian Medical Service is also felt to be a grievance. On the whole, it can hardly be said that the Indian Service at the present time offers the advantages over the Royal Army Medical Corps, either professionally or pecuniary, that it formerly possessed. If the changes foreshadowed in the recent minute of the Secretary of State be carried out, it seems to be inevitable that the status, prospects, and influence of the Indian Medical Service will be affected injuriously. The objections to these proposals are, however, we venture to think, so serious on the grounds of general policy that we abstain from any criticism of their effect on the prospects of the Indian Medical Service. There is indeed no concrete proposal to criticise. It is, however, a dangerous thing to introduce a feeling of distrust and uncertainty into any public service, if the duties hitherto performed by the Indian Medical Service are in future to be shared with other medical men not of that service, then the privileges and emoluments of the Indian Medical Service will inevitably be diminished, with the natural result that men of the highest class will come forward in fewer numbers to compete for the service, and the service generally will deteriorate. Such a result would be disastrous.

SOME RECENT OBSERVATIONS ON SUPERSENSITIVENESS TO TISSUE EMULSIONS

On 18th May v Dungein read, in the Heidelberg Club for Natural History and Medicine, a paper in which he reported the following interesting facts—Gorowitz had treated a series of women at the Samaritan Hospital with injections of emulsions of fragments of tumours that he had removed. The fragments were minutely sub-divided and heated to 56°C to "kill" them. In those cases in which a patient received an injection of *her own* tumour extract, in a few hours a more or less marked reaction occurred—redness, redness, and tenderness of the part appeared and lasted for a day or two, the general condition of the patient being however unaffected. In some of these cases a marked retrocession of the enlarged glands was noted. The conclusion arrived at was that the patients were supersensitive to their own tumours.

With Hirschfeld, v Dungein carried out a series of experiments on rabbits with a view to ascertain whether an emulsion of their own testicles would call forth symptoms of supersensitiveness in them. The rabbits' testes on removal were kept at 10°C. For each injection 0.3 gm of testicular substance was well rubbed up in 0.5 cc of saline solution. The injections were made into the subcutaneous tissue of the ear. Some rabbits received injections of emulsions of bull's testicular extract. In cases in which a reaction was observed, some swelling of the ear occurred within 3–6 hours. Repeated injections of bull's testicular extract easily produced a tendency to "allegetic reaction," whereas rabbits' testicular extract in only a few cases caused supersensitiveness—2 rabbits became supersensitive of 10 that were treated with emulsions of *their own* testicles. One rabbit was supersensitive to injection of an emulsion of another rabbit's testicle, and more so to one of its own testicular extract. Alcoholic extracts of testicular substance and lecithin did not cause symptoms of supersensitiveness.

Pregnant rabbits were found to be in many cases highly supersensitive to even the first injection of rabbits' testicular extract. There it was not a specific reaction against species, but against tissue for emulsions of ovarian tissue and of adrenal gland tissue produced very little if any symptoms. A similar supersensitiveness to an extract of the human testicle has not yet been observed. That antibody formation against testicular substance may be made use of in avoiding conception appears to be the opinion of v Dungein, who is still engaged in work on this point.

Attempts were made to obtain passive supersensitiveness by injecting the defibrinated blood of a rabbit that had been treated with bull's testicular extract, and was in excellent health, into other—untreated—rabbits. In very many cases death occurred within a few minutes after intravenous injection of the blood, the symptoms exhibited being similar to those observed when rabbits received an intravenous injection of the antigen to which they had been rendered supersensitive. Consequently here one has the peculiar fact that the blood of an animal that is in good health is poisonous for animals of the same species. Numerous experiments put it beyond doubt that the phenomena were not due to either fibrinogen, or any poisonous substance formed during clotting. When a supersensitive rabbit received an injection of its own defibrinated blood, no untoward result was observed. Again, it was found that a supersensitive rabbit, whose blood was poisonous for other rabbits, might die after receiving an intravenous injection of the defibrinated blood of a healthy rabbit. It was found that the blood of a pregnant rabbit was poisonous for many rabbits, and that often a pregnant rabbit died after receiving an

intravenous injection of 5—20 cc of the defibrinated blood of a healthy rabbit. Naturally this is to be remembered when one has to perform transfusion in a case of post-partum hæmorrhage—*Muenchener Med Woch*, No 35 of 1909

AS OTHERS SEE US

THE following extract from the *Bulletin of the Manila Medical Society* is of interest—

Indian Medical Service—Much of the best medical work done in India is to the credit of the Indian Medical Service whose members, in theory, are medical officers of the native army of 160,000 men, but, in practice, during peace, two thirds of them act as—health officers, quarantine officers, laboratory workers, college professors, travelling commissions, etc. This arrangement works excellently as it enables the Government to make the best use of the men on the ground, and with the assurance of promotion and a good status there is no trouble in getting plenty of the right kind of men. If some such general medical service were adopted for the Philippine Islands, it would undoubtedly solve many of the present difficulties, such as the insufficient number of white men available for the work and the resulting failure of well planned improvements.

RENAL CALCULUS IN CALCUTTA

IN the *Archiv f. Schiff- und Tropenhygiene* 1909, 13 Bd., heft 16, Dr. H. Finck, Physician to the Imperial German Consulate-General, Calcutta, has a paper on the occurrence of renal calculus in Calcutta, and the relation of this disease to climatic influence. In three years he has met with 18 cases. In 15 of these the calculus was obtained, and in 14 it was analyzed. In 7 cases the calculus was composed of uric acid or acid urate of sodium, in 4 of oxalate of calcium, and in two of phosphate of calcium.

In one case the stone was composed of all the above substances and, in addition, carbonate of calcium and carbonate of magnesium, the patient, a Russian, having for years suffered from renal calculus before he came to India. The treatment adopted was the administration of morphia for the colic, with 3 gm. urotropin *per diem*, decreased by half a gramme daily after the passage of the stone. Bimanual massage was employed as soon as the pain had been controlled by the morphia, and there was reason to believe that in two cases this directly influenced the rapid passage of the stone. As a prophylactic measure, dietary restrictions in accordance with the composition of the stone were imposed. One patient who was neurasthenic and a free liver was so impressed by the agony that he endured during the passage of a uric acid stone, that he went to the opposite extreme and took to a diet composed almost entirely of vegetables, with much tea as a beverage. Yet he suffered from another stone, which was this time composed of oxalate of calcium. Three other cases in which oxalate of calcium was present were heavy tea drinkers—the Indian tea which they used contain-

ing from 0.3 to 0.5% of oxalic acid, which corresponds to 0.02 gm. per cup. In these cases tea was forbidden, small doses of carbonate of sodium were given immediately after each meal, with morning and evening 1 gm. of magnesium sulphate, and the amount of fluid ingested was increased, small quantities being drunk every now and then between meals, whether thirst was present or not. All the cases occurred during the drier months of the year, the period July to end of October giving no case in any of the three years.

THE EFFECTS OF THE INJECTION OF A FOREIGN SERUM ON MAN

As the injection of the serum of horses that have been immunized against tetanus-toxin, diphtheria-toxin, streptococci, etc., is such a usual feature of the medical practice of to-day, and as some may have hesitated to employ these antisera, on reading about the phenomena of anaphylaxis, it seems to be necessary to recall the actual facts found in the case of human beings that have been treated with injections of foreign serum.

Though so far back as 1839 Magendie discovered that while his rabbits tolerated two intravenous injections of a solution of egg-albumin, a third injection, given some time thereafter, would certainly cause their immediate death, very little attention was paid to this observation until serology came to be studied systematically. We now know that rabbits and guinea-pigs are sensitive to injections of foreign serum—indeed, foreign protein of any kind. Fowls and other birds are in like case. How does man stand? Will he be likely to develop anaphylaxis to a fatal degree?

The answer is No. As v. Pringet and Schick have pointed out, human beings react to injections of horse serum in many cases painfully. They suffer from urticaria, fever, pains in the joints, swelling of the lymphatic glands, and may show œdema of the tissues, with albuminuria. These symptoms of what these observers have called the "serum disease" were found to make their appearance on the eighth to the fourteenth day after the injection, and to disappear soon, the patient's condition having been during their presence more uncomfortable than dangerous. Of course, not all men show this sensitiveness to the foreign serum. If a second injection of serum be given from 14 days to 4 months after the first injection, then an "immediate reaction" occurs in sensitive patients—the symptoms of serum disease appearing within 24 hours. On the other hand, if the second injection be given at any time after 4 months have elapsed since the first injection an "accelerated reaction" occurs—the serum-disease symptoms appearing, not after 8—14 days as in the case of the first injection, but after 5—8 days.

Now though in about 20 % of cases treated we have "immediate reaction," and in about 30 % "accelerated reaction," in no case has death been recorded, and it has been observed that those cases which have daily injections of antiserum do not develop such severe symptoms of serum disease after the first injection as those that have received an injection every second day. Cases that have received their injections every fourth or fifth day seem to suffer much more.

It is only in the case of patients who suffer from *spasmodic asthma* that the injection of a foreign serum may be looked upon as a dangerous experiment. Faintness, pain in the chest, dyspnoea, cough, sneezing, urticaria, itching of the scalp, swelling of the face and tongue, with nausea and vomiting may in asthmatic subjects immediately follow the injection, and in some cases these symptoms have been very intense and have been rapidly followed by cyanosis and collapse, yet the patient has eventually recovered. In one or two cases convulsions and death have occurred.

W D S

DYSENTERY IN ASSAM JAILS

ADMISSIONS to hospital show a decrease for the year 1908. The high rates seen in Dacca jail are attributed to overcrowding which rendered it impossible to separate patients convalescing from dysentery. In the Rampur jail the same cause largely contributed to the difficulty of dealing with the disease. The introduction of a more liberal diet in Faizpur jail resulted in improvement in the general health and in a large decrease in the admissions for dysentery. In this jail fish was issued throughout the year at the rate of 5 ozs per prisoner three times a week in place of 3 ozs of dal.

The diet works out at—	Rice	20	ozs	} roughly
	Dal	5	ozs	
	Fish	3½	ozs	

This increase entailed a slightly higher expenditure, but the Magistrate remarks that the expenditure was amply compensated for by the results.

CATARACT, ITS CAUSE AND TREATMENT

At the recent Ophthalmological Congress at Heidelberg, Rome of Greifswald reported that, acting on the assumption that senile cataract is due to the specific action on the lens of cytotoxic products of metabolism, he had endeavoured to combat this action by homologous organotherapy by administering lens-substance to patients the subjects of senile cataract. The results obtained by him appeared to show that this method of treatment is of some value, for both subjective and objective improvement of sight occurred in the cases treated (*Deutsche Med. Woch.*, No 7 of 1909). Now Possek of

Graz in the *Wiener Klin. Woch.*, No 11 of 1909, reports that he has obtained the following noteworthy results in the case of rabbits that have been rendered cataractous by the administration *per os* of naphthalin.—If the rabbit be given naphthalin and lens-substance at one and the same time, the cataract comes on more rapidly and is more marked than when naphthalin alone is given. If the rabbit be immunized by intraperitoneal injections of lens-substance, so that it yields an antiserum of high potency, sufficient to react with a more than thousand-fold dilution of lens-substance, and this rabbit be then treated with naphthalin given *per os*, in the same way greater rapidity and intensity of the onset of the cataract are noticed.

On the other hand, if a dose of lens-substance be given intraperitoneally to a rabbit, and 12 to 24 hours after this it be given naphthalin, no cataract forms but retinal changes occur. This is also the case when a rabbit is treated with the blood serum of a rabbit that has been treated with naphthalin.

THE COUNTESS OF DUFFERIN'S FUND

THE twenty-fourth Annual Report of the National Association for Providing Female Medical Aid to the Women of India gives indications of steady and satisfactory progress. Fair progress has also been made in the direction of providing relief to *puirah* women. The Lady President, Her Excellency the Countess of Minto, has visited a large number of hospitals under the Fund and in those visited for the second time has been much struck with the advance made in the proper provision of accommodation for *puirah* patients. The Lady President has been most gratified with the excellent work being carried out by the Lady Doctors in charge.

Generous assistance continues to be forthcoming, so that the financial status of the Association remained sound.

Steady progress continues to be maintained in the number of patients treated, the number of women now being annually relieved, which last year for the first time exceeded two millions, shows an increase of two hundred thousand over that total.

During the year a new Provincial Branch has been formed in the North-West Frontier Province, with Mrs C Bunbury as the first Lady President and Lieutenant-Colonel G W P Denny, I M S, as the Honorary Secretary.

The year under review has seen the birth of the *Journal of the Association of Medical Women in India*.

The importance of the work being carried on by this Association can hardly be exaggerated and is worthy of the most liberal support. It provides relief for large classes who would otherwise never obtain the benefit of medical advice and treatment.

A CUTANEOUS REACTION IN TYPHOID FEVER

DEEHAN cultivates a virulent strain of the *B. typhosus* on agar slants for 24 hours, then washes off the organisms with saline solution, an attempt being made to have about three billion bacilli per cc of emulsion. The emulsion is then kept at 37.5°C for four days, by which time the bacilli have settled down at the bottom of the vessel, and then it is sterilized by being heated at 60°C for half an hour, and centrifugalized for 2 to 6 hours, the clear supernatant fluid being then pipetted off into sterile tubes, after it has been ascertained to be sterile. The reaction is obtained thus—One drop of this fluid is placed on the patient's skin, which is then lightly scarified through the drop, only the most superficial layers of epithelium being removed. In 16 to 24 hours a zone of hyperæmia 2 mm to 2 cm in diameter, with one or more papules in its centre, is observed, the skin being slightly swollen and hard. This reaction was obtained in everyone of 12 cases of typhoid tested by Deehan, while in 8 controls, none of whom gave a history of typhoid, no reaction was obtained. Further details will be published, and these we shall duly give our readers [*Univ. of Penna. Med. Bull.*, June 1909].

LECITHIN RETARDS MENSTRUATION

In a recent number of the *Semaine Médicale de Wilczinski* report that by administering doses of 10—20 cc of lecithin thrice daily, the treatment being begun during the intermenstrual period and continued for ten days or a fortnight, he has been able to cause retardation of the catamenia for one or two weeks. No untoward effects of the drug were observed, in phthisical cases a slight elevation of temperature occurred—(0.5°C).

ANTI DYSENTERIC SERUM

The well known Hoechst Color Manufactory has placed on the market an anti dysenteric horse serum whose strength is such that $\frac{1}{100}$ cc protects a rabbit against the lethal dose of dysenteric toxin. The serum is put up in 10 cc and 20 cc bottles with 0.5% phenol added to prevent bacterial contamination. It would be of great interest to all of us if some one who has occasion to treat a large number of cases of bacillary dysentery—which is, we believe, by far the more common form of dysentery in India—would try this antiserum in a series of cases and compare the results obtained with those got by treating other series with drugs, etc.

Reviews

Essentials of Medicine. A Text-book of Medicine for Students beginning a Medical Course, for Nurses, and for all interested in the care of the Sick.—By CHARLES PHILLIPS EMERSON, M.D. Published by J. B. Lippincott Co. Pp 383. Price 8s 6d.

SINCE the author's experience is that American students of medicine lack perspective in their

subject, and have not learned to separate the important from the unimportant, he writes this book for their benefit and for that of nurses. In a book having these aims, accuracy is absolutely essential, and in this the author fails. For example, it is stated that if an artery is cut, the blood will spurt 15 or 20 feet, that the total capillary bed is eight times as wide as the aorta which feeds it, that the slowing of blood in the capillaries is due to the great resistance which they offer to the flow of blood, that the heart dilates in aortic regurgitation because more blood requires to be thrown out of it at each beat (the old and perennial confusion between "why" and "how,") that an opening between the two ventricles should close at birth, and that failure to do so produces a "blue baby" which is usually miserable till the circulation has established its normal course. The descriptions of diseases are of very varying merit, some good, some more than disappointing, for example, under appendicitis occur the words "The treatment in appendicitis is always operation," this may be the writer's private opinion, but it is strongly opposed to that of a large body of medical men, and he is entirely unjustified in making such a statement in a book intended for the use of students and nurses. The book is unlikely to be successful in filling the position which its author desires it shall.

Mind and its Disorders. A Text-book for Students and Practitioners.—By W. B. STODDART, M.D., F.R.C.P., Assistant Physician to Bethlehem Royal Hospital. Publishers H. K. Lewis. Pp 488. Illustrations 74.

THIS book consists of three parts: the first on normal psychology, the second on the psychology of the insane, and the third on mental diseases. As regards the first part, the author's attitude is exactly summed up by the statement that sensation is the only essential attribute of conscious mind, and that all the more complex mental functions are derivable therefrom. He does not shrink from the logical extension downwards of this proposition, one indeed demanded by the theory of evolution, that sensation is an attribute of all matter animate and inanimate, a supposition in which we agree with him, but we cannot follow him in his application of the principle in all the directions he takes. For example, regarding "affection," which is the pleasant or unpleasant tone of feeling accompanying sensation, he writes "The affective tone of pleasure or pain is a feeling or sensation superadded to the sensation which gives rise to it, and since we have found that sensations arise from peripheral stimuli, it becomes our duty to look round and see if we can discover any stimuli which may be regarded as the cause of this superadded sensation." He notes that a pleasant tone is accompanied by arterial dilatation, deepened respiration, increased muscular power, and

abduction of the arm, and an unpleasant tone by the opposite phenomena. He consequently infers that it is these muscular and circulatory sensations which give rise to the tone of feeling superadded to the sensation. The sequence of events is that stimulation by afferent impulses produces sensation, sensation produces certain afferent impulses which result in certain motor acts, and these motor acts produce afferent impulses resulting in a tone of feeling. He sums up these physical accompaniments of affection by saying that they indicate a general tendency on the part of the organism to reach out to what is pleasant and to withdraw from what is unpleasant. But this constitutes in reality a *reductio ad absurdum*, for it is quite evident that if the organism reaches out to what is pleasant, it already experiences a feeling of pleasure, yet on the hypothesis under consideration there should be no feeling of pleasure till after the reaching out process. The physical accompaniments must be looked upon not as the cause of the affective tone but as its effect. In the same way emotions are looked upon as arising from the activities of certain muscles, the same muscles indeed which are responsible for their expression. If this were all, then surely the intensity of emotion should be proportionate to these muscular activities, but surely the man who has the self-control to suppress these activities may yet be as intensely angry as the man who "lets himself go," grinds his teeth, clenches his fists, and performs the other movements by which rage may be expressed. It is rare except in the mad-house or on the stage that the expression of the emotions is allowed free play, and yet our feelings run none the less deep, we believe. On the other hand, very strong reasons are given for believing that disorders of sensation are powerful in determining the direction taken by hallucinations and delusions in the insane, though we are unable to agree that they hold such an essential position in determining the type of mental disease as the author is inclined to believe.

Regarding the part of the book on mental disease, it is, in common with the other parts, most stimulating, practical, concise and exhaustive, and if it is not reviewed at length, it is because considerations of space forbid. Probably the most important part of it is the prominent place given to rest in bed and to overfeeding in the treatment of acute mental disease. The book is one which we have read throughout with the greatest pleasure and profit, and we feel sure that it will meet with the wide appreciation which it deserves.

Neurasthenia by Gilbert Ballet, translated from the Third French Edition—By P CAMP BELL SMITH, M D. Published by Henry Kimpton P 408, figs 7. Price 6s

BOTH author and translator have done their work so well that it is a real pleasure to read

this translation of the third edition of Professor Ballet's book. Its scheme is as follows: After a definition which sums up neurasthenia as being "notable weakness," the causes of the disease are considered, and among them "over-pressure" takes the predominant place, particularly what the author styles "moral" over-pressure, but which would probably be better expressed in English idiom as "emotional" over-pressure. Two types of the disease are described, a depressed and an animated, but all intermediate grades occur. The symptoms fill two chapters, and are divided into those of primary and those of secondary importance. They are clearly and exhaustively considered. Four forms of the disease are recognised, namely, cerebro-spinal neurasthenia, neurasthenia of women, genital neurasthenia and traumatic neurasthenia. After discussing causation the author passes on to what forms the great bulk of the book, prophylaxis and treatment. In the matter of prophylaxis the portion dealing with the training of the child's character is particularly good, and is of general application. Treatment is considered fully under the heads of psycho-therapy direct and indirect, diet, hydro-therapy, climate, and exercise, and there are two final chapters on the treatment of neurasthenia of women and of genital neurasthenia. In the matter of diet a table borrowed from Gautier, giving the co-efficient of utilisation of the protein present in various articles of food, is of interest to jail authorities in India at the present time. It shows that of all articles of ordinary diet lentils give the lowest percentage of utilization, a fact which falls into line with the chemical and microscopic work done recently on the Indian dals. The book is unusually valuable and very readable, and deals with a subject which is already important in India and will, we have no doubt, become increasingly so as years go on.

Blackwater Fever (Bilious Malignant Tertian Ague)—By A. G. NEWELL, M D (Glasg.), C M, L M, D P H (Cantab). Messrs John Bale, Sons and Danielsson, Ltd, 1909

IN this little book the author gives his experiences of blackwater fever and states the conclusions he has come to regarding the nature of the condition.

From an experience of nine years' work in districts where malaria is rampant and blackwater fever common, he has made certain observations and offers certain interpretations.

The author adds one more to the many ideas that have been put forward to explain blackwater fever. He accepts the ordinary views that malaria (particularly malignant tertian) and quinine, under certain conditions, are intimately connected with the etiology of the condition, but adds that congestion of the liver is also necessary for its production.

We have no doubt that congestion of the liver is an accompanying condition both of

malignant tertian and blackwater fever, but cannot accept the author's conclusion that it is a cause of the latter. We believe the discovery of the causation of blackwater fever is more one for the laboratory than for the clinician, however, every addition to our knowledge is valuable.

An interesting personal element is added to the work by the fact that the author himself suffered from blackwater fever and gives an account of his own attack.

Eleven very useful and valuable appendices are added, which deal with the different side issues of blackwater fever and afford concise information on the mosquito, the blood, quinine, the bile, fevers in India, etc.

Further Advances in Physiology—By LEONARD HILL, M.B., F.R.S. Edward Arnold, London, 1909. Obtainable in India, through Messrs Longmans, Green & Co., Bombay, 1909.

THOSE who have had the pleasure of reading "Recent Advances in Physiology and Bio-chemistry" by the same editor will require little urging on our part to make themselves acquainted with the contents of this second instalment. We may say at once it is a splendid book, well-written, concise and of the very greatest interest to the physician as well as the physiologist.

It is a very long time since we have read any work which has given us such satisfaction and pleasure. The only complaint one feels inclined to make is that it is all too short, and leaves one hungry for the other volumes that have been promised. The aim of the Editor has been to write up the most recent views on certain selected subjects which, both by their interest and importance, will stimulate the student, give him a wider view than can be obtained from the ordinary text-book, and at the same time rivet his attention on subjects which have a particular application to pathology and clinical medicine.

The present volume is devoted to the consideration of certain problems concerning the circulation and respiration, the neuro-muscular system and vision. Prof. B. Moore, writing on the relation of the heart-beat to its nutritive fluid, has developed this subject into a most instructive consideration of the equilibrium of colloid and crystalloid in living cells. Martin Flack deals with the highly important recent researches on the heart muscle and the cardiac beat. The editor gives an admirable summary of the present position of our knowledge regarding blood-pressure, its measurement, and its supposed importance as a mechanical factor in lymph formation, dropsy, excretion of urine, etc.

Dr. Keith contributes an account of recent work on the mechanism of breathing, Dr. Penhry discusses the physiology of muscular work, Dr. Alcock discourses on the growth, regeneration, union of nerves, and the nature of the nervous impulse. Dr. Bolton contributes a

really splendid article on cerebral localisation and the functions of the cerebrum, including the revolutionary views that have been put forward concerning Broca's localisation of aphasia. Mr. Greenwood deals with visual adaptation and colour vision. There seems plenty of choice to suit the most varied tastes, but we are convinced that a perusal of this volume will only whet the appetite. Every medical man should make himself acquainted with much that will be found conveniently arranged in the different chapters of this volume. We heartily congratulate the editor and his coadjutors on a most excellent publication and assure them of its cordial reception.

International Clinics. A Quarterly Journal of Illustrated Clinical Lectures and selected Original Articles—By Leading Members of the Medical Profession throughout the World. Edited by W. T. Longcope, M.D. Vol. II, XIX series, 1909. Messrs J. B. Lippincott Co., 1909.

THE present volume of this valuable series comprises lectures and articles on treatment, medicine, surgery, gynaecology and obstetrics, ophthalmology, otology, proctology, psychiatry and pathology. The several articles in each section reach a very high level and are well worthy of careful perusal. The subject-matter is profusely illustrated with coloured plates, plates and figures, the whole volume being got up in a most attractive style.

The volume opens with a most interesting and valuable study of immunization against typhoid by Shoemaker. The history of its development with analyses of the report of the German and British Commissions are given in full detail. The conclusions arrived at are favourable in every way, and completely substantiate all claims made by Wright when he first introduced the method.

An article of great interest to Indian physicians is one by Wells on diabetes, while nothing new is put forward the subject is very thoroughly discussed and the article gives an admirable summary of our present-day knowledge of this disease.

A most instructive and beautifully illustrated paper by Daniel on congenital idiopathic dilatation of the colon (Hirschsprung's Disease) opens the section on surgery. The author discusses the condition very fully and lays special emphasis on the etiology and pathology.

We are glad to note that Goodman, from a compilation of recent work on the Cambridge reaction, is able to state definitely that the clinical value of the reaction is assured, and that the attitude of writers towards the test has completely changed.

Many other striking articles are to be found in this volume, including both the general practice of medicine and surgery and the more specialised branches.

A Text-book of Diseases of the Ear—

By Professor Dr ADAM POLITZER of Vienna
Translated at the personal request of the author
and edited by Milton J. Ballin, Ph.D., M.D.,
Assistant Surgeon, New York Ophthalmic and
Aural Institute, and Clarence L. Heller, M.D.
Fifth Edition, Revised and Enlarged, with 337
Illustrations. Royal 8vo, pp. xiv + 892. Price
25s net. London: Ballière, Tindall & Cox, 1909.

We had occasion early in 1903 to review the translation of Professor Politzer's fourth edition of his well-known text-book on Diseases of the Ear, and now we have received the translation of his fifth edition by the same American otologists. It is unnecessary to notice at length such a standard work as this which has reached its fifth edition. The main changes introduced in it are in connection with the diagnosis and treatment of labyrinthine disease, in the elucidation of the pathology of which the author and his assistants have had a large share. As before, the translation is excellent, and the book can be recommended as a mine of information and as containing most complete references to the literature of the subject.

A Handbook of Photography for Amateurs in India—

By G. EWING, F.R.P.S. Second Edition.
Thacker, Spink & Co. Price Rs 8.

THIS is the second edition of a book which has been the standard work on photography in India for the past fourteen years, and as a great many advances have been made during that time, the book is practically new.

The articles on photography in colours by the Lumière process and on the recent methods of printing show that the book is thoroughly up-to-date.

In addition to giving a complete account of the actual processes involved in photography, the volume also contains an explanation of the scientific basis of the various procedures, and so is likely to appeal to the serious photographer as well as to the amateur.

The most valuable feature of the book is the attention paid to the points in which photographic technique in the tropics differ from that of cold climates, and the numerous hints and tips dealing with this aspect of photography render the book essential to amateurs in India.

The book is handy in size, consisting of 769 pages, and it is well printed and neatly bound in a cloth calculated to withstand the efforts of the insect pests which play such havoc with most European bound books.

A System of Medicine—

By ALLBUTT and
ROLLESTON. Vol. V. Diseases of the Respiratory
System and Disorders of the Blood. Pp. 969.
Price 25s net. Macmillan & Co.

THIS volume of the new edition of "Clifford Allbutt," is one of the most important of the whole series to the general practitioner, dealing as it does with diseases which form a large proportion of his daily practice. It is, therefore,

with considerable interest that one looks into the volume to find out whether the same standard of excellence which characterized the previous volumes is maintained in this.

The article on Artificial Aerotherapeutics by Theodore Williams contains an interesting account of the excellent results obtained in the treatment of asthma by compressed air baths.

Goodhart and Spriggs in their article on asthma utterly condemn the treatment of the paroxysm by the various quack inhalations which are so popular among the sufferers. It is to be feared, however, that if it were a question between giving up his cherished inhalation and giving up his doctor, the patient would not long hesitate as to which he would sacrifice.

The articles dealing with bronchitis are perhaps the least satisfactory of any in the volume. They are full of interest and full of valuable suggestions in the matter of treatment, but the classification of the inflammatory conditions of the bronchi, and our knowledge of their etiology are subjects of such difficulty that it would appear to be quite impossible as yet to write a convincing narrative regarding them.

Eyre definitely states that the cure of lobar pneumonia can be hastened by the injection of a vaccine at an early stage of the disease. It appears that the positive phase after injection is established within two days, so that a vaccine introduced before the end of the third day will stimulate the immunizing mechanism of the body to bring about a crisis at an earlier stage than if the naturally produced toxins were relied on. This line of treatment contains many possibilities, not only in pneumonia, but also in typhoid and other septicæmic diseases, but the average practitioner will probably wait till more experience has accumulated regarding technique and results before he feels justified in adopting the treatment. The account of the drug treatment of pneumonia will greatly disappoint those practitioners who regard the disease as offering a fair field for the exhibition of the latest synthetic remedies, especially those with long and unfamiliar names. Bulloch, while stating the views of the various contending parties as to the common avenue of infection in phthisis, holds the opinion that the disease is essentially due to inhalation. Bulloch is also the author of scientific and critical articles on the specific means of diagnosis of tubercle and also on the treatment of the disease by the various vaccines and antisera. Apart from the reputation of the author, the articles themselves contain abundant evidence of being a fair and unprejudiced account of the questions with which they deal, and it is, therefore, with all the greater disappointment that one finds how vague and undecided is the writers' final judgment on the significance of the specific reactions and on the value of tuberculin in treatment. Evidently the

time has not yet come when the general practitioner can readily diagnose tuberculous disease in the clinically doubtful cases, or when he can attack the disease with confidence of success. In the article on pneumothorax it is surprising to find no mention of the very valuable treatment of the condition, by continuous drainage of the air through a cannula and rubber tube. Details of this method are published in Quain's Dictionary of Treatment, which appeared several years ago, and anyone who has used it is likely to give it the foremost place among the forms of treatment at his disposal.

The articles on pernicious anæmia and the leucocythæmias contain much that is new and interesting, but they do not offer much hope of a solution of the problem of successful treatment.

Wright's account of the treatment of hæmorrhage in hæmophilia is full of valuable suggestions. In addition to calcium chloride internally, he advises inhalation of carbonic acid gas and the local application of a styptic made from fresh extract of a lamb's thymus, he says that with these methods "all cases of hæmophilic hæmorrhage should prove controllable."

Regarding the volume under review there can be no doubt that it fully maintains the high standard of its predecessors.

The Dietetic Treatment of Diabetes—

By B D BASU, Major, I M S (retired), Allahabad, 1909. The Panini Office. Pp 11+40. Price, Re 1 80.

THE author of this little work states that he has written it "as much for the general public as for the ordinary medical practitioner." For the general public in India the long extracts from the works of v Noorden, Haig, Donkin, Sawyer and others are worse than useless, for the ordinary medical practitioner the news that "treatment should be directed in diabetes, not to the withdrawal of all possible forms of sugar in the food, but to sources remedying the deficient pancreatic digestion and stimulating the metabolism of the cell" may be of use if he understands what is meant. We confess that we do not. Nor do we see what good end can be served by giving a long disquisition on the value—*teste* Ridwill—of rye bread, and directions for making inulin biscuits—taken from v Ziemssen's Handbuch.

ANNUAL REPORT

THE BALUCHISTAN AGENCY ANNUAL REPORT FOR THE YEAR 1907, BY THE ADMINISTRATIVE MEDICAL OFFICER

IN the dispensaries of the various classes 255,355 cases were treated, being a decrease of 10,705 as compared with the previous year. This decrease is accounted for to a large extent by a decrease in the number of cases of malarial fever, viz, 5,129, the decrease in the number of all other diseases being 5,576.

The year 1907 was a more healthy one than the previous year. The total cases of malaria were 71,917, being a decrease of 66 per cent whilst in bowel complaints as represented by diarrhoea and dysentery there was a large decrease of 23.32 per cent. There was an increase of 27.76 per cent under the heading of diseases of the spleen, most probably a legacy due to the large amount of malarial fever which occurred in the previous year. The other diseases sometimes more sometimes less than last year do not call for special mention. Cases of poisoning by opium and other diseases show an increase of 1.72 per cent as compared with a decrease of 5.17 per cent in the previous year. Out of the total cases 65.68 per cent occurred in Quetta or the district.

The province generally was very free from infectious and epidemic diseases during the year. Only 27 cases of small pox were reported, of which 15 occurred in the Quetta District as compared with 96 out of 131 in the previous year.

One case only of Typhus was admitted into the Quetta Civil Hospital, but several cases were reported from the Khat District. A total of 14 cases of measles were reported from the Zhob District.

The year under report was, on the whole, a healthy one as regards malarial fever and it appears that with the exception of a few places all parts of the province share in the decrease in the number of cases of malarial disease treated in the dispensaries. The total cases treated amounted to 71,917 as compared with 77,046 in the previous year.

The total number of persons vaccinated in 1907 amounted to 9,147 being a decrease of 4,488 or 32.91 per cent as compared with the previous year. The number of successful cases reported was 7,564 being 82.7 per cent of the total vaccinated which must be considered satisfactory. The diminution in the total number vaccinated is explained by the fact that but little small pox occurred in the province, in the absence of which many persons do not wish to be vaccinated.

REPORT OF CHEMICAL EXAMINER TO THE PUNJAB GOVERNMENT, 1908

THE number of cases and articles submitted for analysis shows a considerable increase as compared with the previous year, the numbers being 1,475 and 3,966 respectively as against 1,334 and 3,668. As pointed out by the Inspector General, however, the increase as compared with the year 1906 is not large.

The ratio of detection has risen in practically every class of case being 72.86 in human poisoning cases and 80.58 in cattle poisoning cases and 91.04 in cases of murder, etc., with violence. Sir Louis Dane regrets to notice that the introduction of the rules under the Poisons Act in 1907 has not apparently caused a falling off in the use of arsenic as a poison. Out of 323 cases of cattle poisoning, arsenic was the poison used in no less than 306. In human poisoning arsenic was used in 411 cases out of a total 647. The Lieutenant Governor is interested to notice that in accordance with a suggestion made by the Government of India in 1903 burnt bones and ashes were sent up for analysis in 6 cases. In 2 of these arsenic was detected.

It was suggested during the year that the system adopted in the United Provinces of transmitting viscera in medico-legal cases to the Chemical Examiner in special boxes or bottles should be adopted in this province. There was a large consensus of opinion in favour of maintaining the system at present in force in the Punjab, mainly owing to the risk of contamination of the specimens from repeated use of the boxes. His Honour is glad to note that the Inspector General is devoting attention to the question of the improvement of judicial mortuaries and the safe custody of articles pending despatch to the Chemical Examiner from out stations.

Sir Louis Dane wishes to express his appreciation of the work done by Colonel Grant, I M S, during the year.

TRIENNIAL REPORT ON THE WORKING OF THE PUNJAB LUNATIC ASYLUM, 1906—1908

THE present report covers the triennial period 1906—1908. The daily average of patients which in 1905 was only 477 rose to 604.75 in 1906, 608.13 in 1907 and 627.31 in 1908. This gradual rise in numbers shows that the popularity of the institution continues to increase. Some overcrowding has taken place in the male asylum owing to the rise in numbers. It is a matter for congratulation that the new hospital which can accommodate 150 patients is practically in a state of readiness. The proposal to utilize the existing hospital for the accommodation of convalescents is an excellent one. The opening of the new building should add materially to the physical and mental welfare of the institution.

The Lieutenant Governor is glad to notice that though the number of female patients has slightly decreased, instances

have not been wanting of high caste Hindu and Muhammadan women being placed in the asylum by their guardians. This is a signal mark of public confidence, and is due, in Sir Louis Dane's opinion, to the sympathetic management of the female branch by the Franciscan nuns, of whom Major Evens, I.R.S., speaks so highly.

It is satisfactory to notice that efforts are being made to improve the amenities of the asylum. His Honour has perused with much interest Major Evens' account of the amusements which are provided for the inmates. A great opportunity for adding to the beauties of the place presents itself in the laying out of the grounds of the new hospital. This should be done to the best advantage.

The Lieutenant Governor sympathizes with the Superintendent in his inability to obtain the services of a good class of attendants. The scale of wages was raised in 1907 but with the general rise that has taken place this does not appear to have had much effect. It is doubtful whether the employment of a European head attendant would do more to raise the level of the staff than can be done by the Superintendent himself.

Sir Louis Dane wishes to place on record his high appreciation of Major Evens' services in connection with the asylum. The good work performed by the other officers mentioned, by the Franciscan Nuns, and by the staff is also deserving of great commendation.

Correspondence

"LITHOTRITY AND LITHOLAPAXY"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the reports of Civil Medical Administration in India and Burma operations for stone in the bladder are grouped under three heads, Lithotomy, Lithotripsy, and Litholapaxy.

In the edition of Buchsen's Surgery dated 1888, is the following: "Up to the year 1878 the operation of Lithotripsy was practised on the lines originally laid down by Civiale and Brodie, the main features of which were to crush the stone by repeated operations, each limited to a few minutes, and to allow the fragments to pass by the natural efforts of the patient." In 1878, however, Bigelow of Boston demonstrated that it was possible to break the stone up at one prolonged sitting, and to completely wash out the fragments at the same time through a large catheter or evacuator. To this method of operating he gave the name of "Litholapaxy," but its enormous advantage over the older methods was so quickly recognized and it so speedily became universally adopted, that the distinctive name is now seldom used, and when we speak of Lithotripsy we mean crushing the stone and removing the fragments."

In face of the above, written in the year 1888, it seems a strange anomaly that two separate headings, Lithotripsy and Litholapaxy, should appear in returns in which stone in the bladder figures so largely. It seems to me it would be best to discard the heading Litholapaxy altogether and classify all crushing operations under the head of Lithotripsy.

Lithotripsy is concise, and suggests the special instruments used and the nature of the operation. Litholapaxy is cumbersome. It is derived from *λίθος* (stone) *λαπάξω* (evacuation).

MAY 1910
29th August 1909

C DUER,
MAJOR, I.M.S.

"RELAPSING FEVER AND THE LOUSE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—On p. 426 of the *Indian Medical Gazette* for November 1908 is given a summary of Capt Mackie's researches into the etiology of Relapsing Fever, taken from the Bombay Laboratory Report, 1907. From this it would appear that the body louse is under suspicion as a transmitter of the disease. In the months of August and September of 1908 I had three cases of Relapsing Fever in this hospital. The first was a woman from Mhow, the other two being the husband of the woman and a servant, both of whom contracted the disease in the hospital while attending upon the woman. A certain number of bugs were examined for spirilla but none were found. One head louse and two body lice from the servant were examined with a similar negative result. In March 1909 two more cases of Relapsing Fever,

a woman and her child, were admitted into the hospital from a neighbouring village. On March 6, several body lice were examined from both patients with negative results but one head louse from the mother showed numerous spirilla. It would thus appear that the head louse also must be regarded with the same suspicion as the body louse.

In the above observations the patients' blood was teeming with the organisms when the examination of the lice was undertaken.

CHARIFABET HOSPITAL, } Yours &c,
INDORE, C I. } P R BHANDARKAR

"FIBROLYSIN IN VALVULAR DISEASE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—May I request you to kindly find a place for the following suggestion in your valuable journal, along with your own criticism on it—

Fibrolysin in Valvular Disease of Heart

Most of your readers are, I believe, aware of the varied uses to which *Fibrolysin* has been put, after it was placed on the market. So far as I am aware, nobody has, as yet, tried it in *valvular disease of heart*. Yet, seeing that it is indicated, wherever chronic fibrosis is the chief pathological factor, one should have expected this to have been tried in cases of V.D.H., specially of *rheumatic origin*.

I have not observed any evil effects on the heart while the drug was used for various other complaints. Hence, even if no favourable results are obtained, the patient's condition will not be prejudiced by its use. I should like, therefore, that those who have an opportunity might try this and publish the results.

Yours sincerely,

M R GURUSWAMI, B.A., M.B., C.V.,
Practitioner

BANGALORE (CITY)

"THE LUCKNOW MEDICAL COLLEGE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—It will be some time yet before this fifth Indian Medical College comes into being. It is said that it will be a model institution of its kind this side of the Suif. One can scarcely have doubts about such excellent predictions considering the munificent contributions made by the talukdars and the generous support promised by the Government. But I am afraid, money alone cannot lead to a successful organisation of a scientific institution of such magnitude. Its success as a teaching institution will largely depend on an expert direction of the minutest details of equipment from the very initial stages. It is, therefore, highly satisfactory to find that the Government have selected Colonel Harris as the next Inspector General of Hospitals in the United Provinces, as he is eminently fitted to advise on this particular subject on account of his long connection with the Calcutta Medical College. It will not be amiss to note that the Hospitals in the United Provinces have greatly improved in equipment and efficiency with the advent of the Professors of the Calcutta Medical College with up to date knowledge of the medical science in its practical aspects. Again, it seems to be a sound policy to import the departmental head from another province, because from an administrative point of view, it is important that there should be no room for the undefined influences of those little likes and dislikes which it is not uncommon to have, in the course of a long professional practice with which personal interests are so materially identified.

Yours sincerely,
"EXPERTO CREDE"

"ENCYSTED STONE IN THE URETHRA"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—In the August issue of the *Indian Medical Gazette* I read with great interest an article on encysted stone in the urethra. My own experience in Burma goes to show that small impacted stones are by no means rare, but early in the present month a man came to hospital suffering from general anasarca, urine loaded with albumen, could only pass water in drops and there was very great pain on micturition. A large hard globular mass was felt in the scrotal part of the urethra well in front of the triangular ligament. The anterior part of the mass was where the penis joined the scrotum.

On operation, a large round stone with a small projection at one side rather like the stem of a fruit was removed. The stone in the dried condition weighed 1 oz 4 drams, or 720 grs. I should be glad to know if larger stones than the above have been met with in the urethra.

Yours faithfully,
P DEE,
MAJOR, I M S,
Civil Surgeon, Bassem

"COMMONSENSE SANITATION IN RELATION TO DYSENTERY"

"To the Editor of 'THE INDIAN MEDICAL GAZETTE'"

DEAR SIR,—I have noticed more than one article lately in the *Indian Medical Gazette* concerning the health of the Midnapore Central Jail.

Will you kindly allow me to give my experience when in charge of that jail. I took over charge at the end of November 1906, and was transferred from Midnapore on July 5th, 1907.

For the year 1906 the death rate of the jail reached the high figure of nearly 56 per mille, and the chief cause of this high mortality was dysentery. When I handed over the jail in July 1907 the death rate stood at a small fraction more than 15 per mille.

Thus phenomenal reduction in the death rate was brought about without any heroic methods of treatment whatsoever, i.e., by ordinary commonsense sanitation. I began by sending back to the contractor the bad rice, etc., which he seemed to be in the habit of supplying to the jail. Dysentery patients were segregated and treated with saturated solution of magnesium sulphate and their stools destroyed, and on discharge the patients were again segregated in a post dysenteric gang. For certain periods during my tenure of office Capt. Forster, I M S., was at Midnapore doing research work with reference to the causation of dysentery. Up to July 5th, when I left Midnapore, vaccine treatment had not been begun, i.e., it was used in one case only. I do not know what took place after July 5th, except that the mortality of the jail increased, and that in 1908, it went up to a high figure.

From Capt. Gillitt's article one would suppose that "systematic vaccine treatment" of dysentery had been carried out at Midnapore during the whole of 1907. This was certainly not done before July 5th, 1907. I took over the jail in an unhealthy state, and handed it over in a healthy state as the mortality of a fraction over 15 per mille will show for all practical purposes, the dysentery was stamped out of the jail before Capt. Forster arrived, and he was therefore able to go on duty elsewhere for lengthened periods, owing to want of material to work upon.

Some years ago, the great mortality in the Jubbulpore Jail was reduced by the same ordinary means.

In Midnapore I was the first whole time I M S. Superintendent that had been in charge for some years.

Major Lane, who reduced the mortality in the Jubbulpore Jail, also followed a non I M S. Superintendent, and it is interesting to note that that same non I M S. Superintendent was transferred from Jubbulpore to Midnapore. It will be seen therefore that ordinary commonsense sanitation and medical supervision can reduce a jail mortality to a normal level without other means.

MOOLTAN,
20th September 1909 }

Yours, etc.,
R. M. DALZIEL,
CAPT, I M S

SPECIAL ARTICLE

SOME OLD EIGHTEENTH CENTURY LIST OF THE I M S

BY D. G. CRAWFORD, M.B.,
LT COL, I M S,
Civil Surgeon, Hughly

III—BOMBAY

No definite orders establishing the Madras and Bombay Medical Services appear to be in existence, and it seems most probable that the order of 20th October 1763, by which the

Bengal Medical Service was formally organised, with effect from 1st January 1764, was taken to apply to the whole three Presidencies. Of course, there had been surgeons, first at Surat, since the early years of the seventeenth century, and later at Bombay and other stations. But these Medical Officers were engaged as individuals, and served as such, with no special relation to other company's servants of the same profession. A General Hospital had been built at Bombay so early as 1676.

In 1769 an administrative Medical Officer was appointed at Bombay with the title of Surgeon-Major—

"Bombay Consultations, 30th July 1769. As many irregularities and neglects of the sick in their quarters have been found to arise from the Surgeons of the several battalions acting in their practice independent of anyone of their profession. It is, therefore, agreed to appoint a Surgeon-Major to the garrison, to whom the Surgeons must be accountable for their proceedings, and who must also have inspection of the Sepoy Hospital when finished. The Surgeon-Major will receive the ten shillings a day as allowed at the other Presidencies and permission to supply the Sepoy Hospital with country medicines. Mr. Samuel Richardson being esteemed a proper person for the office is accordingly appointed."

This order shows that the rank of Surgeon-Major was definitely recognised in all three Presidencies as that of an administrative officer, under whom the junior Medical Officers served. In Bengal there was one Surgeon-Major to each brigade. The title fell into disuse after the establishment of the Medical Boards as administrative bodies, and was not again revived until 13th January 1860, when this title and rank were bestowed upon all Medical Officers with over twenty years' service.

In 1769 there were four Surgeons in Bombay, and an order in para 97 of letter from Court of Directors, dated 31st March 1769, fixes the pay of the first and second Surgeons at £150 a year, of the third and fourth at £125, house rent being also given in both cases.

The Court of Directors issued orders for the formation of a Hospital Board at Bombay in a letter dated 21st September 1785 (paras 36-40). It took about two years before these orders were acted upon. At a Consultation of the Bombay Board of Council on 15th June 1787, it was resolved that the Court's orders respecting Hospitals and the Medical Department should be sent round for the perusal of members, and that they should subsequently be considered.

At a meeting of Council held on 16th August 1787, the Hospital Board was accordingly appointed. It consisted of two members: Mr. Andrew Duiham, Physician-General and Director, £1,500 per annum, Mr. Richardson Harrison, Hospital Surgeon, £800 per annum.

The letter of 21st September 1785 states that a very considerable number of Surgeons and Assistants will be required. The Court say, however, that the excess number in Bengal will

be quite sufficient to fill any vacancies which there may be in Bombay * The last two paragraphs on the subject run as follows—

Para 39 As in the present state of our affairs, we cannot admit of any unnecessary expense, we have come to a resolution and direct that no more Surgeons or Assistant Surgeons, than those necessary for our several Hospitals and establishments shall draw pay or allowances from the Company. The supernumeraries must depend on their private practices till vacancies fall, as it was not our intention in permitting Surgeons of any description to proceed to India to practice in their profession that they should immediately on their arrival receive pay, unless appointed to some station in consequence of vacancies.

Para 40. From this resolution, however, it is our intention to exempt such as have been in actual service with the troops or in detachments during the war,† and we consent to their drawing their pay while unemployed.

The pay of the members of the Bombay Hospital Board seems very small, in comparison to that fixed in the other two Presidencies. The senior member in Bombay received only the same salary as that of the third members in Bengal and Madras, and the second member little more than half that amount, while there was no third member. It is true that the Bombay service was small, the members being less than half those of Madras and Bengal. But the professional duties of the Bombay Board were probably as great as those in Calcutta and Madras, as they were not slow to point out.

The new Bombay Hospital Board held its first meeting on 24th August 1787, and promptly submitted a large number of recommendations to the Local Government. They do not protest against their rate of pay, but point out, with much vigour, that their duties are as extensive as those of the Calcutta and Madras Boards, and ask for the appointment of a third member, partly on that ground, and partly because, as they show, a Board of two members, with a casting vote to the senior, is useless. If the two members disagree, the casting vote of the senior will always carry the day, if they agree, equally the senior member's views prevail. As a third member, they recommend the appointment of Mr Anthony Toomey, Surgeon at Tellicherry. They also ask sanction to appoint a Secretary, as in the other Presidencies, and recommend John Williams for the post.

They further point out how, hitherto, four Principal Surgeons have been stationed in Bombay, a number which is now reduced to two, the new Hospital Board, and state that on the day of their meeting "the sick in the three hospitals, by the reports of this morning, amounted to 325, of which 221 were Europeans," while the three hospitals were at some distance from each other, and two of them outside the gates.

They further recommend that, should Toomey's appointment to the Medical Board be sanctioned, William Lloyd should succeed him as Surgeon to the General Hospital at Tellicherry, and that, on account of the distance and inaccessibility of Tellicherry, all communication being cut off for four months every year, a second Surgeon should be stationed there.

They also recommend that Helenus Scott be appointed Apothecary (Medical Store-keeper), on a rate of pay somewhat higher than that of a Regimental Surgeon, that William Moir succeed Scott as Surgeon to the Artillery, that Thomas Drummond and William Sandwith be appointed first and second "mates" to the Bombay General Hospital, Francis Toomey as mate of the Town Hospital, on his return from Bussora, John Price acting in the meantime, and that Gabriel Alvarez be appointed mate to the Sepoy General Hospital. They further state that the Surgeons in charge of the three General Hospitals at Surat, Tellicherry, and Tannah should be more highly paid than the Regimental Surgeons, on account of their greater responsibilities.*

At their next meeting, on 28th August 1787, the Hospital Board state that they purchased from their predecessors the "Hummums" (baths), which are a necessary adjunct to a hospital, and for which the Company pays a monthly rent of Rs 150, and ask the Company to purchase them. They also point out that Government is in arrears to the extent of over a *lakh* and a quarter with its payments for the up-keep of the hospitals.

The Bombay Government replied to these protests and recommendations, on 1st September 1787, as follows. They state that a third member of the Board cannot be appointed, as the Court of Directors had clearly fixed the number at two, but agree to transmit the request for a third member to the Court of Directors for consideration†. They also agree to the appointment of a Secretary to the Hospital Board, and accept the nomination of John Williams, and to the appointment of a mate to Tellicherry, in addition to the Surgeon. They also accept the Board's nominations of different officers to various appointments, posting John Price to serve on one of the cruizers, and about Mr Gabriel Alvarez they remark "to be considered in point of rank and pay as a native assistant only." They state that the Surgeons to the Hospitals at Surat, Tanna, and Tellicherry will each receive £600 a year.

They decline to purchase the Hummums, or to continue to rent them, and make no mention of the arrears due for the up-keep of the hospitals.

* As noted in the first of this series of articles (*I M G*, June 1909 p. 235), all the 24 supernumeraries in Bengal had already been absorbed in that Presidency, owing to vacancies caused by death, retirement, and furlough.

† The first Maratha War and second Mysore War.

* In Bengal and Madras the Surgeon in charge of a General Hospital at a station where 8 000 troops were stationed received £1,500 a year, the salary of the President of the Bombay Board, in smaller General Hospitals, £1 000.

† The Bengal and Madras Boards were reduced from three to two members in 1796, and raised again to three in 1805. It was not till the latter date that the Bombay Board got a third member.

BOMBAY CASILE, 16TH JUNE 1779

A List of the Surgeons in the Hon'ble Company's Service on the Bombay Establishment, distinguishing the dates they were entertained with their present stations and employments

Rank	Name	When entertained	Their present employment	REMARKS
1	William Tennent	26th Sept 1762	Principal Surgeons of the Hospital, &c	Principal Surgeon, 15th May 1770
2	James Bond	30th Nov 1762		Went to England, February 1784
3	Saml Richardson Surgeon Major to the Troops	5th April 1765	Ditto ditto	Went to Europe, letter from Bombay 6th October 1782
4	George Birch	— Sept 1766		Surgeon Major 26th May 1769 Went to Europe, 1783
5	Robert Sproult	— 1767	Surgeon of the Hospital, &c Broach	Went to England, letter of 26th March 1785 (Name should be Sproult)
6	Robert Adams	— Oct 1768	Surgeon of the Hospital at Tanna	Death reported in letter from Bombay, 20th March 1786
7	John Blakeman	Ditto 1768	Surgeon of the Hospital at Surat	Physician General Died at Bombay, 1st August 1787
8	Andrew Durham	Ditto 1768	Surgeon of the Corps of Artillery	Physician General, and first member, Hospital Board, 1787 Went to Europe 1790
9	Alex G Clugstone	Ditto 1768	Surgeon of the Battalion of European Infantry, but ordered by the Hon'ble Court of Directors under 4th July 1777 to be appointed Surgeon of the Hospital at Bombay on the first vacancy that shall happen after the receipt thereof	Surgeon General to the Army and Physician General, 1792 Died at Bombay, 12th July 1792
10	Richardson Harrison	— 1769	Surgeon at Tellicherry	Second Member of Hospital Board, 1787 Went to Europe, 1st January 1789
11	Anthony Toomey	15th April 1771	Surgeon with the detachment of Artillery sent lately to the North West	Medical Board, 13th January 1789 Physician Genl 12th January 1790 Died at Bombay, 16th January 1797
12	Fredrick Carmichael	— Aug 1771	Supernumerary Battn Surgeon, at present acting as an Assistant in the General Hospital	Taken prisoner at Bednur, 1783 Died in captivity at Chitalding, 5th November 1783
13	William Gicen	14th Nov 1771	Supernumerary Battn Surgeon, Bombay	(No information)
14	James Robson	12th April 1772	Surgeon at Bussora	Died at Bussora July 1780
15	Christ Mathw Kelce	— Dec 1772	Surgeon of the "Drake" Snow	Name given by Dodwell and Miles as Kehn Died at Bombay, 6th October 1802
16	William Fleming	1st Feb 1773	Supy Mily Surgeon, at present Assistant to Mr Adams at Tanna	(No information)
17	Francis Crozier	— Aug 1773	Surgeon at Anjengo	Medical Board, 15th September 1789 Died on Board the <i>Woodford</i> , on passage home 23rd July 1800
18	Joseph Laprun	11th Oct 1774	Supy Mily Assistant Surgeon	Died at Bombay, 29th April 1805
19	Samuel Guize	23rd Aug 1775	Surgeon at Fort Victoria	L L D Munschal College, Aberdeen, 9th June 1809 Retired, July 1796 Died, 1811
20	William Spink	7th Feb 1779	Ordered to this rank by the Hon'ble the Court of Directors, but not to be employed on boardship, unless he pleases, at present assisting the Bengal army to the north ward	Medical Board Died at Bombay, 20th May 1798
21	James O'Brien	— July 1776	Surgeon of the "Fagle" Snow	(No information)
22	William Lloyd	29th Mar 1777	Do do "Revenge"	Medical Board, 1792 Still serving in 1800
23	William Mou	— May 1777	Do assisting at Broach	Medical Board, May 1797 Died at Bombay 21st April 1806
24	Thomas Cruso	30th Jan 1778	Do do in the Convalescent Hospital of Bombay	Medical Board, 1st February 1800 Died in England, 25th July 1802
25	Lorienne	20th Mar 1778	Do of Ye B'by Grab	First name Alexander Died, 1790
—	Joseph Pouget	10th Sept 1778	Surgeons Mate of the Genl Hospital	Retired 19th October 1808
—	James Shields	26th Mar 1778	Surgeons Mate of the Convalescent Hospital	Taken prisoner at Bednur, 1783 (No further information)

The oldest list of the Bombay Medical Service which I have seen is dated 16th June 1779. It has already been published, being contained in a volume of selections from State papers, published at Bombay in 1887(5). But as most of those who may read this article have probably never heard of, much less read, this work, it should be as new to them as it was to me when first I came across it.

This list contains only 27 names. It gives the full name, date of first appointment, and post held, by each. The fourth column in the list as here printed, of remarks, showing what became of the different men whose names are given, has been added by myself.

Out of the 27 names, only nine, exactly one-third, appear in Dodwell and Miles' *East India Medical List*, showing how very imperfect that work is. These nine are A Toomey, Crozier, Kelee (Kehn), Laplain, Guise, Spink, Mon, Cruso, and Pouget. Of the other officers mentioned above, Williams and F Toomey also do not appear in D and M's list, while the names of Scott, Drummond, Sandwith, Price, and Alvarez, who had entered subsequently to 1779, and so are not in this list, are contained in Dodwell and Miles.

The name *Christ Mathw Kelee*, in the list of 1779, is evidently the same as that given by D and M as *C M Kehn*. The latter, Kehn, is the correct name. His Christian names are given in a later Army List, as Christian Mathias. It will easily be seen that the name *Kehn* badly written, might readily be misread and misprinted as *Kelee*.

In another old Army List, three Assistant Surgeons, Kehn, Alvarez, and a third named William Schott, who entered in 1799, are shewn as "unranked Assistant Surgeons." Alvarez is mentioned above as being considered as a native assistant. These three officers appear to have held a position somewhat like that of the subordinate medical service later.

At the time the Medical Board was instituted in 1787, Durham was the senior Medical Officer on the list, Harrison was the third, Anthony Toomey, the fourth. The second officer on the list, Alexander Giant Clugstone, was apparently passed over on this occasion, though he subsequently appears as Surgeon-General to the Army and Physician-General in 1792.

No less than nine, one-third of the whole 27 of these officers, rose successively to the Medical Board. Durham, Harrison, Toomey, Clugstone, Crozier, Spink, Lloyd, Mon, and Cruso, Sandwith also attained that rank.

Joseph Pouget, the last name but one on the list, was a Frenchman. There is a rather curious note about him in the India Office, MS

Records, quoted from the Bombay Military Consultations of 21st September 1790, para 462 "Not deemed a fit person to rise in the line of service, being a foreigner and a Roman Catholic. But as he has really served twelve years, and was at one time placed on the list of Surgeons, Government assigned him the net pay of that rank, and fixed him at Surat as mate in the Hospital there." Pouget appears to have retained his position in the service for thirty years, Dodwell and Miles state that he retired as "Head Civil Surgeon," on 19th October 1808.

Two of the officers in this list, Carmichael and Shields, are mentioned in the column of remarks as having been taken prisoner at Bednur. Bednur or Haidarguh was an extensive fort in the west of the Mysore Territory. When Haidar Ali, the first Sultan of Mysore, died on 7th December 1782, the commandant of the fortress was an officer named Sheikh Ayaz, or Haiyat Sahib, a Nan convert to Islam, who had been a trusted Lieutenant of Haidar Ali's, but who was not in favour with Haidar's son and successor, Tipu Sultan, who at once sent another officer, Lutf Ali Beg, to supersede him in his command. In the meantime General Matthews laid siege to Bednur, which Sheikh Ayaz at once surrendered. Matthews had with him only 1,600 troops, of whom 400 were Europeans, chiefly Highlanders of the 42nd Regiment. This small force was unable to hold the extensive fortifications, and surrendered to Tipu on condition that they should be allowed to withdraw to the coast unmolested. Sheikh Ayaz, fortunately for himself, had left immediately after handing over the Fort, and made his way to Bombay. Tipu at once broke the conditions of surrender, held the whole garrison as prisoners, and sent General Matthews and many of the other officers in chains to Seringapatam, where Matthews was poisoned. Carmichael attended Matthews in prison, and was subsequently sent to Chitalding to attend Jamadar Daulat Bhanu, commandant of that fortress. He was there released from his chains and well treated, but died apparently of natural causes (not, as so many of Tipu's prisoners were, murdered), on 5th November 1783. What became of Shields in the end I cannot say, but he appears to have either escaped, or been exchanged or released before long, for his name appears in the Madras Military Consultations of 29th November 1784, as Assistant-Surgeon to the Bombay Detachment then serving in Madras, and getting an increase of pay.

COMPLIMENTARY DINNER TO LIEUT. COL, MRS HARRIS AND MISS HARRIS ON THEIR DEPARTURE FROM THE MEDICAL COLLEGE, CALCUTTA

A MOST successful dinner was held on Monday, 2nd August, at Calcutta, to bid farewell to

(5) "Selections from the letters, despatches, and other State Papers preserved in the Bombay Secretariat Home Series" Edited by George W Forrest & A Elphinstone College, Bombay, printed at the Government Central Press, 1887. The List of Medical Officers is contained in Vol II, Bombay Diaries, page 242.

Lieut Col, Mis and Miss Harris No less than forty sat down to table, made up of twenty-six I M S officers stationed in Calcutta and fourteen lady guests

The following is a list of the officers who joined in the dinner —

Colonel R Macrae, I M S, President

Lieut-Cols—Dunry, Green, Brown, Ozzaid, Maynard, Lloyd-Jones, Jordan and Nott

Majors—Vaughan, Sutherland, O'Kinealy, Stevens, Waters, Rogers, Gage and Clemesha

Captains—Thompson, Moses, McCay, White, Connor, Steen, Emshe-Smith, Stewart, Megan and Foster, also Mr Hardy-Taylor

After the toast of "The King" had been fully honoured, Colonel Macrae proposed the toast of the evening as follows —

LADIES AND GENTLEMEN,—

I now rise to propose the toast of the evening As you are aware, we are met here at this festive board to bid 'farewell' to Col, Mis and Miss Harris

To use a stereotyped and somewhat hackneyed formula, 'owing to the exigencies of the public service' our friend Col Harris has suddenly been transferred to a higher sphere of duty in another province While we congratulate him on his well-earned promotion, we cannot at the same time help regretting his removal—we hope only temporarily—from the Province with which he has been so long and honourably connected

This is neither the time nor the occasion to deal with Col Harris's creditable record of services, but although I will not attempt to enumerate the various posts he has held, he seems to have been, on the whole, a very fortunate man

It appears that his merits received very early recognition Soon after entering the service he accomplished the greatest feat of his life, he succeeded in persuading Mis Harris to marry him

After that fortunate event his career has been a series of triumphs, and he stepped into a succession of the best appointments the Indian Medical Service has to offer

In Bengal he was appointed Resident Surgeon in the Presidency General Hospital Having held that appointment for about 3 years he was transferred to Simla as Joint Civil Surgeon, which appears to be the recognised stepping stone to future distinction

After holding that appointment for 5 years, he went as Civil Surgeon to Nagpore where he remained for $7\frac{1}{2}$ years

He was then appointed to officiate as Principal of the Medical College, Calcutta, and has been connected with that institution in various capacities for about 11 years On the whole, I think, I am justified in saying that Col Harris may be looked upon as one of the lucky members of the Indian Medical Service

At the same time I should add that in the various posts he has held he has been successful in retaining the confidence of Government, the respect and esteem of his brother officers in the service, and I may say of the public generally with whom he has been for years a popular and respected physician

His contributions to Medical Journals have been numerous and important

In addition to his public duties he has, with the able help of Mis Harris and their charming daughters, taken a leading part in the social life of Calcutta, and I feel assured that not only by their friends and admirers in their own service, but by large sections of other services and of the community generally they will be greatly missed

Among his numerous avocations Col Harris has found time to make a collection which I am told is unique It consists of China—which he believes to be old—Sheffield plate of historical interest, and other articles of priceless value and I am credibly informed that he has been so successful in this pursuit, as to leave but little for future enthusiasts and gleaners in that field

Ladies and gentlemen, I feel that I am here this evening labouring under a certain responsibility for Col Harris's transfer from amongst you It is possible even that some of you may think that 'Superfluous lags the veteran on the stage' I confess that I did not anticipate that my own change of plans would have the effect of dislocating to such an extent the plans of others

I will not detain you any longer by further remarks

Ladies and gentlemen, I now call upon you to drink with me health, happiness and prosperity to Col, Mrs and Miss Harris

Colonel Harris on behalf of himself, Mis Harris and Miss Harris thanked Colonel Macrae and the officers of the Indian Medical Service in Calcutta for their hospitality and for the very kind words in which the toasts were proposed and the manner in which it had been received They very much appreciated the kind thought that induced their friends to entertain them at a farewell banquet

A very enjoyable evening was brought to a close about 12 o'clock by all present singing "Auld Lang Syne" and saying good-bye to the guests

Service Notes

RETIREMENT

LIEUTENANT COLONEL RICHARD JOHN BAKER, of the Bombay Medical Service retired with an extra compensation pension on 12th August 1909 He was born on 29th December 1858 educated at Trinity College, Dublin, where he took the degree of M D in 1880 having previously obtained the diploma of L R C S I in 1879, and entered the I M S on 2nd April 1881 He became Surgeon Major on 2nd April 1893,

Lt Colonel on 2nd April 1901 and was placed on the selected list on 29th April 1906. He served on the North West Frontier in the Zhob Valley Expedition of 1894 but had passed most of his service in civil employ in Bombay his appointment last being that of Civil Surgeon of Karachi.

THE following promotions were made, subject to His Majesty's approval —

Lieutenants to be Captains, 1st September 1909, John Taylor, M B, Alexander Dion Stewart, M B, Claude Harold Cross, Robert Alexander Chambers, M B, John Morison, M B, Samuel George Steele Haughton, M B, Francis William Oragg, M B, Kanwar Shumshere Singh, Andrew Smith Leslie, M B, Herbert Bodley Scott, George McGregor Millar, M B.

CAPTAIN W C ROSS, I M S, Deputy Sanitary Commissioner, Bihar and Chota Nagpur Circle is allowed privilege leave for seventeen days under article 260 of the Civil Service Regulations, with effect from the 1st October 1909.

DR C BANKS, Protector of Emigrants, Calcutta, and Superintendent of Emigration, Bengal is allowed privilege leave for fourteen days, under article 260 of the Civil Service Regulations, with effect from the 2nd October 1909.

DR W FORSYTH Health Officer of the Port of Calcutta, is appointed, in addition to his own duties, to act as Protector of Emigrants, Calcutta, and Superintendent of Emigration, Bengal, exclusive of the Chota Nagpur Division and the districts of Sambalpur and the Sonthal Parganas, during the absence, on leave, of Dr C Banks, or until further orders.

CAPTAIN C F WEINMAN, I M S, reported his departure from India, on leave, on the 8th July 1909.

INDIAN MEDICAL SERVICE—Specialist—The undermentioned officer is appointed a specialist in the subject noted, with effect from 8th August 1909 —

Prevention of Disease Captain C H Reinhold, Brigade Laboratory, Kohat.

THE services of Captain H R Nutt, M D, F R C S, I M S, are placed temporarily at the disposal of the Government of the United Provinces.

MAJOR D W SUTHERLAND, M D, C M, I M S, is confirmed in the appointment of Principal and Professor of Medicine, Medical College, Lahore, with effect from the 14th June 1909.

MAJOR E V HUGO, M D, F R C S, I M S, is confirmed in the appointment of Professor of Surgery, Medical College, Lahore, with effect from the 14th June 1909.

THE services of Captain A S M Peebles, M D, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment in the Aliens' Department.

THE following letter from the Director General, I M S, is published for information —

I am directed to forward a copy of the letter noted at foot, and to request that with the permission of the Lieutenant Governor, all medical officers serving under the orders of the Government of Bengal may be instructed that no medical certificates should be given to military officers, who may consult them or go to them for treatment, and that all communications regarding their cases should be made confidentially direct to the medical officers in charge of the regiment to which the officers belong, or to the senior medical officers of their stations.

THE services of Captain W G Hamilton, I M S, are placed permanently at the disposal of the Government of Bengal for employment in the Jail Department.

MAJOR C R STEVENS, I M S, Professor of Anatomy, Medical College Calcutta, and Surgeon to the College Hospital is allowed privilege leave for fourteen days, under article 260 of the Civil Service Regulations, with effect from the 13th September 1909, or any subsequent date on which he may avail himself of it.

CAPTAIN F P CONNOR, I M S, Offg Resident Surgeon, Medical College Hospital Calcutta, is appointed to act as Professor of Anatomy, Medical College, Calcutta, and

Surgeon to the College Hospital, in addition to his own duties, during the absence on leave, of Major C R Stevens I M S, or until further orders.

MAJOR W G PRIDMORE, I M S, was appointed to officiate as Superintendent of the Rangoon Central Jail in addition to his own duties in place of Captain H H G Krupp M A, M D, I M S, from the 20th May 1909 to the 5th July 1909.

UNDER the provisions of article 260 of the Civil Service Regulations, privilege leave for six weeks is granted to Captain H A Williams, M B, D S O, I M S, Officiating Resident Medical Officer, Rangoon General Hospital, with effect from the date on which he may avail himself of it.

ON his return from leave Captain A Whitmore M B, I M S, appointed to officiate as Resident Medical Officer, Rangoon General Hospital in place of Captain Williams, M B, D S O, I M S, proceeding on leave.

CAPTAIN R M DALZIEL, I M S, has been granted leave (combined) for a period of two years from the 15th September 1909.

CAPTAIN E L WARD, I M S, to act in addition to his own duties as Superintendent, District and Female Jails, Lahore.

CAPTAIN S H LEE ABBOTT, I M S, is granted privilege leave for one month.

CAPTAIN A G SARGENT, I M S, is granted, from the date of such privilege leave of absence as may be due to him on that date and eleven months' study leave in combination with furlough for such period as may bring the combined period of absence up to one year and eleven months.

IN modification of Government Notification No 3566 dated 13th July, 1909, it is hereby notified that Captain A W Tuhe I M S, was placed on special choleric duty at Nasik from the 24th April to the 12th May, 1909.

LIEUTENANT COLONEL C H L MEYER, M D, B S (London) I M S, is granted privilege leave of absence for one month and twenty four days, with effect from the 30th August 1909.

HIS Excellency the Governor in Council is pleased to appoint Major S H Buineth, M F, C M, I M S, to act as Second Physician, J J Hospital and Registrar, J J Hospital in addition to his own duties, during the absence on leave of Lieutenant Colonel C H L Meyer, M D, B S (London), I M S, or pending further orders.

INDIAN MEDICAL SERVICE—Specialist—The undermentioned officer is appointed a specialist in the subject noted, with effect from 6th August 1909.

Prevention of disease

Lieutenant P M Rennie, Brigade Laboratory, Abbottabad.

CAPTAIN C L DUNN, I M S, is granted an extension of leave on private affairs up to the 27th September 1909.

MAJOR B H DFARE, I M S, Civil Surgeon of Hazaribagh, officiated as Civil Surgeon of the first class from the 6th May to the 7th June 1909, during the absence, on deputation, of Lieutenant Colonel F J Drury, I M S.

MAJOR B C OLDHAM, I M S, Civil Surgeon of Patna, is appointed, with effect from the 8th June 1909, to officiate as a Civil Surgeon of the first class, during the absence on deputation, of Lieutenant Colonel F J Drury, I M S, or until further orders.

LIEUTENANT COLONEL A H NOTT, I M S, Officiating as a Civil Surgeon of the first class, is confirmed in that class with effect from the 6th August 1909, vice Lieutenant Colonel T Granger, I M S.

MAJOR R H MADDOX, I M S, Officiating Civil Surgeon of Darjeeling, is appointed, with effect from the 6th August

1909, to act as a Civil Surgeon of the first class during the absence, on deputation of Lieutenant Colonel J G Jordan, I M S, or until further orders

LIEUTENANT J TAYLOR, M B, I M S, is placed on special duty under the orders of the Sanitary Commissioner with the Government of India

CAPTAIN W G LISTON, M D, I M S, is granted privilege leave for three months with furlough for one year in continuation, with effect from the 11th September 1909

THE promotion of Major Asher Leventon, F R C S I, notified in *London Gazette* of 4th October 1907, is antedated to 29th January 1907

THE promotion of Major Jasper Maxwell Woolley, M B, notified in *London Gazette* of 26th March 1909, is antedated to 29th July 1908

LIEUTENANTS TO BE CAPTAINS

Dated 1st September 1908

Arthur Falconer Hayden, M B, F R C S (provisionally)

Dated 1st February 1909

Percy Strickland Mills, M B (provisionally)

Frank Phillips Weincke

Dated 1st March 1909

Charles Richard O'Brien, M B

Norman Haliburton Hume, M B

Giles Edmund Malcomson, M D

Duncan Macdonald Cochran Church, M B

SPECIALISTS—The undermentioned officer is appointed a specialist in (c) Electrical Science with effect from 25th June 1909—

Lieutenant F H Salisbury—2nd (Rawalpindi) Division

CAPTAIN D N ANDERSON, I M S, Officiating Civil Surgeon Chanda is deputed for a short course of instruction at the Central Research Laboratory, Kasauli with effect from the 2nd September 1909, or subsequent date of making over charge

MAJOR D W SUTHERLAND, M D, C M, I M S, Principal and Professor of Medicine, Medical College, Lahore, is granted furlough out of India for one year, with effect from the 1st October 1909

MAJOR H G MELVILLE, M D, F R C S E, I M S, Professor of Materia Medica, Medical College, Lahore, is appointed to officiate as Principal and Professor of Medicine during the absence on furlough of Major D W Sutherland, M D, C M, I M S, or until further orders

CAPTAIN A C MACGILCHRIST, M D, I M S, is appointed to officiate as Professor of Materia Medica, Medical College, Lahore, during the deputation of Major H G Melville, M D, F R C S E, I M S, as Principal and Professor of Medicine, or until further orders

THE services of Major G McI C Smith, M B, I M S, are placed permanently at the disposal of the Government of the Punjab, with effect from the 22nd June 1909

CAPTAIN WILLIAM HERBERT BOALSH, I M S, whose services have been placed at the disposal of the Lieutenant Governor for duty in connection with the suppression of plague has been posted to Mandalay. Captain Boalsh assumed charge of his duties at Mandalay on the 4th September 1909, before noon

HIS EXCELLENCY the Governor in Council is pleased to make the following appointments, pending further orders—

Captain W M Houston, M B, I M S, to take up his appointment as Assistant to the Civil Surgeon, Pooni

Captain E C G Maddock, M B, I M S, to act as Resident Surgeon, St George's Hospital

Captain A J V Betts, M P, I M S, to act as Civil Surgeon Nasir

Captain R M Barron, I M S, to act as Personal Assistant to the Surgeon General with the Government of Bombay

HIS EXCELLENCY the Governor in Council is pleased to appoint Captain E C G Maddock, M B, I M S, to act as Professor of Materia Medica and Pharmacy, Grant Medical College, Bombay, pending further orders

MAJOR G F W EWENS, I M S, Superintendent, Punjab Lunatic Asylum, is granted leave for one year from the 11th October 1909

ON relinquishing charge of his duties as Assistant Plague Medical Officer, Lahore on the afternoon of the 1st of August 1909 Captain G I Davis, I M S, proceeded to Kasauli for training in clinical bacteriology and technique at the Central Research Institute

CAPTAIN BA KET, I M S, is deputed to Simla on duty

THIRD Class Military Assistant Surgeon A E Hamlin, M R C S, L R C P (London), is appointed to the Civil Medical charge of the Pegu District, in place of Captain Ba Ket, I M S, on deputation,

CAPTAIN C P O'Brien, I M S, Officiating Civil Surgeon, Jalpaiguri, is granted privilege leave for twenty three days, under Articles 250 (b) and 260 of the Civil Service Regulations, with effect from 11th September 1909

Notice

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis if requested

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Vaccination Returns, Eastern Bengal & Assam

Annual Return of the Charitable Dispensaries under the Government of Bengal, 1908

The Dietetic Treatment of Diabetes By B D Basu, The Punni Office Allahabad

Village Sanitation, K C Banerjee, Sanskrit Press Calcutta

Annual Statistical Returns and Short Notes on Vaccination in Bengal

Sleeping Sickness Bureau Bull No 9

Records of the Indian Museum Vol II Index

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Forty seventh Annual Report of the Government Luncheon Plantation and Factory in Bengal 1908

Poisoning by Arsonnietted Hydrogen, etc By John Glaister, M D (Messrs L & S Livingstone, Edinburgh, 1908)

The Aural and Ethical Allegory of Deuteronomy Smith (Messrs L & S Livingstone, Edinburgh)

Annual Report of the Vaccine Section of the King Institute of Preventive Medicine, Madras, 1908

Hongkong Medical and Sanitary Reports, 1908

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Davidson, Travancore Madras Dr H G T Werner, Hamburg

and Miss M T Staley, M D, Lahore

Original Articles.

PROSTATECTOMY *

By E. HAROLD BROWN, M.D., M.R.C.P., LOND.,
F.R.C.S. ED.,
LT COL., I.M.S.

At the request of the Honorary Secretary to read a surgical paper at this meeting of our society, I have selected the subject of Prostatectomy, or total enucleation of the prostate gland in its capsule.

As far as I can gather this is an operation which is not often performed in Calcutta, certainly not as often as it might be, considering the number of patients who suffer from enlargement of the organ. I have seen and examined a great many so afflicted, and have urged operation in most of the cases but, as a rule, objections have been raised not only by the friends (the patient, as a rule, has been anxious for relief by operation), but also, in many instances, by the practitioner in charge of the case who has urged, as reasons against the operation, the age of the patient, and the fact that he is very weak.

When it is remembered that only old men are affected by the disease, and that the state of weakness to which the sufferers are reduced is entirely owing to the pain, distress, anxiety and the loss of rest occasioned by the attendant cystitis, the hæmorrhage and the frequent attempts to empty the bladder it will be conceded that the objections urged against operation are mere excuses and not valid reasons.

At starting, I must remind you that this operation is entirely due to the consummate skill and delicate technique of a member of the Indian Medical Service, whose name is known and honoured throughout the surgical world—Lieutenant-Colonel P. J. Freyer.

When first introduced by him, and after the report of his earlier successful cases, the operation was not viewed with favour by any of the surgeons attached to the hospitals in Great Britain. They maintained that Freyer could not do what he claimed to have done, as the anatomy of the parts rendered the procedure impossible, but they were wrong, and their anatomy, not Freyer's operation, was at fault, and you all know how, after much unseemly wrangling and immoderate writing in the medical journals, the home surgeons had to admit that the existing text-books were wrong, and Freyer was right, and that the total enucleation of the hypertrophied prostate was not only possible, but comparatively easy and marvellously successful.

I shall not touch on the anatomy of the prostate or the symptoms of the affection which

are familiar to you all, but shall proceed to a description of the operation and the after-treatment of the case, my remarks applying to cases where there is adenomatous enlargement of the organ, and not to malignant ones. The latter are extremely difficult to enucleate, are attended with a high mortality, and are better treated by X-rays. The patient's bowels should be attended to for a few days beforehand, it being important to have them as empty as possible at the time of operation, and an enema should be administered early the same morning.

The patient having been prepared in the usual manner, and chloroform having been administered, the bladder is washed out with a warm solution of boracic acid, and a quantity of the fluid sufficient to produce moderate distension of the viscus is allowed to remain in, the catheter is also retained.

The bladder is then opened by means of the ordinary suprapubic incision, the index finger of the left hand is passed in, and the outline of the enlarged organ ascertained. The mucous membrane over the most prominent part of the prostate, usually one of the lateral lobes, is then torn through with the finger nail or the point of one blade of a pair of scissors, and the tip of the finger is insinuated between the mucous membrane and the exposed capsule of the gland. (In addition to its own true capsule the prostate is also covered with another sheath derived from the pelvic fascia, the blood vessels running between these two layers. As the gland develops, it bursts through this sheath so that, when the mucous membrane is torn through, the capsule proper of the gland is reached, and the gland, in its own capsule, is separated from the sheath derived from the pelvic fascia, which is left behind.)

By gentle boring movements these two structures are separated first below, then to the outer side, and then above. The finger is then passed to the inner side, peeling the lateral lobe off the urethra, pushing the latter upwards, towards the symphysis, and, during this manoeuvre, the two lateral lobes usually come apart where they embrace the urethra. The other lobe is treated in exactly the same way, and, finally, the finger is pushed forward, so as to separate the anterior surface of the gland from the triangular ligament. The organ is now completely detached and falls into the cavity of the bladder, from which it is removed with forceps.

During these manipulations, the index finger of the gloved right hand passed into the rectum assists the operator by pushing the gland forward, or tilting it in any required direction.

The bladder is irrigated with hot boracic lotion through the catheter, which was left in for the purpose, and a good many clots are thus washed out through the suprapubic wound.

As a rule, there is not much hæmorrhage, free venous oozing occurring which is easily checked by the hot irrigation, but, particular care must

* Being a paper read before the Medical Section of the Asiatic Society in July 1909.

be taken to allow the fluid to flow into the bladder at very low pressure so as not to disturb the clot which has formed in the cavity left by removal of the prostate. If fluid at any pressure be forced into the bladder the result will be dislodgment of the clot, and the bleeding will start afresh.

I have never seen serious hæmorrhage after this operation but, in the event of such an occurrence, a practical suggestion of Fieyer's might be tried—"Immediately after the prostate is delivered from the bladder, the margins of the cavity from which it has been removed should be pressed together all round the vesical opening, between a finger placed in the bladder, and another placed in the rectum, thus facilitating its contraction and diminishing its size, and so arresting hæmorrhage, as the dentist presses the gums together after the extraction of a tooth, or the accoucheur does the flaccid womb, with a similar object in view."

After the clots have been removed, a large-sized drainage-tube with a lumen of $\frac{5}{8}$ of an inch and with two large eyes cut near the extremity, opposite each other, would be passed about an inch into the bladder but not deeper, so as not to rest on the clot in the cavity referred to. If the extremity of the tube infringe on that spot, it will cause pain and straining.

The wound in the bladder is not stitched, but silkworm gut sutures are passed through the lips of the abdominal wound, above and below the tube in order to make the lips of the wound embrace each other tightly, the sutures pass deeply through the rectus muscle on each side, and one is passed through the tube to keep it in position, but none of the stitches are buried.

The tube is closely gripped, both by the bladder and the margins of the external wound, all the urine passing out through it, and infiltration into the prevesical connective tissue is prevented.

The wound is covered with several folds of boue gauze, and thick layers of absorbent wool are placed in front as well as behind and at the sides, the whole being kept in place with a many-tailed bandage.

The dressings are changed after four hours, and every six hours subsequently, as there will be a free discharge of urine through the tube.

The bladder is irrigated through the drainage tube every morning by means of a slender glass nozzle attached to the tubing of an ordinary douche can, this is passed down the tube, and warm boracic lotion is allowed to flow into the bladder at low pressure.

Irrigation of the bladder should be carried out by the operator himself daily, on the first occasion some clots will probably be washed out but later, the returning fluid will be more or less clear.

The drainage tube is left in for four or five days after its removal, the bladder is washed out by passing the glass nozzle down the track left by the removal of the tube, this will

gradually contract till, in the course of ten or twelve days, it will be almost impossible to insert the glass nozzle. At about this time the patient will probably begin to pass a few drops of urine per urethram, after which all the urine will soon pass by the natural passage, and the track will presently close.

The bowels need not be attended to for three or four days, when an enema should be given and, subsequently, an aperient saline by the mouth every other morning.

The patient is allowed to sit up, using a back-rest, on the fourth day, that is, after the removal of the tube, but for the first twenty-four hours he is kept on his back.

There is seldom much pain or distress after this operation, and the rapidity with which the patient improves is very striking. Pyrexia is the exception, and an old worn-out man, the picture of misery and suffering, is transformed in a few days into a happy, grateful creature, the days of suffering and nights of torment give way to a continuous freedom from pain, the patient sleeps a good deal, his appetite returns, he puts on flesh and, when the wound has healed and the urine is passed by the natural passage, he can retain his water for several hours, and feels years younger.

I have performed this operation eight times the patients' ages varying from 55 to 82, seven of the cases were completely successful, one, a thoroughly worn-out, decrepit old man dying of dysentery on the thirteenth day, when well on the way to recovery from the operation.

Two patients were operated upon on the same day, their ages being 55 and 65, and both did well.

The operation on case No 7 was performed on the 28th of April this year, he was a man of 65, with a stricture as well as a large prostate, the stricture was dilated, and I was assisted at the operation of Prostatectomy by Major E. E. Waters, I.M.S., Messrs Salisbury, Zorab and Shillington Smith, all of the I.M.S. being also present.

Case No 8 came to operation on the 30th of July and is practically well. He first passed urine through the urethra on the tenth day, and the suprapubic wound is rapidly healing. He is the oldest man on my list, being 82 years of age, and his recovery has been absolutely uneventful, with no rise of temperature and complete freedom from pain. He is most grateful to me, as I am to Lt-Col Fieyer who made it possible to restore health and comfort to a large class of patients who, till that Surgeon introduced his operation, were doomed to lives of misery and utter wretchedness, for the other operations for the purpose of relieving the many symptoms produced by an enlarged prostate were seldom followed even by improvement, while a radical cure, such as is now effected in the vast majority of cases, was never seen.

ENTERIC FEVER IN INFANCY

BY A. F. HAMILTON, M.B., F.R.C.S.,

CAPTAIN, I.M.S.

DURING the past three years it has been my good fortune to have several cases of enteric fever in infants under my care, and the following notes have been written with a view to pointing out a few facts connected with the disease as it occurs in infants.

Incidence—The literature on the subject is scanty, from which one may conclude that the condition is a comparatively rare one, or else that it has been to a large extent overlooked or not diagnosed. Leigh Canney in his article on the "Ætiology and Prevention of Enteric Fever" in the *Special Enteric Number of the Practitioner*, January 1904, says it is rare in infancy—he gives no statistics as to the relative infrequency.

F. M. Sandwith, in the same journal, says that for many years "I had not seen a patient under 4 years, until in November 1901, a child, aged 18 months, came under my care." This too in a large practice in Cairo.

Osler in his *Principles and Practice of Medicine* says "it is very rare in infants."

In my opinion enteric fever in infancy is by no means so rare as is generally supposed—many cases of irregular fever of unknown origin are really enteric fever, but before the days of Widal's reaction a definite diagnosis must have been extremely difficult.

Sex—The number of cases under observation is nothing like sufficient to throw any light on sex influence, there seems no reason to suppose one sex to be more liable than the other as regards infants, as the condition and environment which play an important rôle in the liability of the disease in adults do not come into force in connection with infancy.

Prevalent Season—July to September, this corresponds with the seasonal influence as it affects the disease in adults (This applies mainly to India).

Source of Infection—This, a highly important factor, is one that ought to be more easily solved in the case of infants than in adults, owing to the greater simplicity of their diet.

In two of my cases I have reason to believe that contamination of raw meat juice was the source of infection.

If one could definitely prove this it would be of much importance, for raw meat juice is such a valuable article of diet for infants, that one would hesitate to condemn its use, at any rate out in India, on the mere supposition that it may be a fertile source of infection in enteric fever.

In one case notably, G. W., male infant, 15 months old, the diet of fresh milk (rigidly boiled) with addition of malted preparations, was one, that was daily kept under the most scrupulous

observation by a careful mother. In the early part of the rains in Poona, there is a prejudice against fresh milk, owing to its liability to set up diarrhoea and allied complaints.

For this reason tinned milk is largely used as a temporary expedient. Not long after the addition of raw meat juice to the dietary, enteric fever attacked the infant. The meat is brought from the bazaar and of course is not subjected to any sterilising influence such as cooking, etc., that it may become contaminated by infected dust in the bazaar or in transit to a bungalow must be admitted.

Almost exactly the same sequence of events occurred in another infant, H. J., age 2 years, for whom raw meat juice was ordered to make up the deficiency caused by a fresh-milk-free diet. The idea of raw meat juice being a source of danger as regards enteric infection is put forward tentatively, and it is to be hoped that others who may have cases of enteric in infants under their care may be able to definitely settle the question.

Mortality—The mortality is said to be much less in infancy than in adolescence—the disease tending to run a more benign course. It is difficult to give any figures on the subject as probably no one observer has had sufficient number of cases to form any estimate of mortality percentage. Certainly my limited experience would show that the prognosis is good, provided, and this is an important point, that the patient is placed under what I may call enteric conditions. One of my cases, H. J., had an extremely severe attack, the frequency of the stools for a few days being 20 to 30 stools per diem—continued high fever and other unfavourable symptoms—yet the infant made a complete recovery, thanks to the devoted and constant attention of two nurses in attendance.

Onset—It is probable that in the majority of cases the onset is quite gradual, and so insidious that several days may elapse before a suspicion of the true nature of the disease may present itself. In this respect it conforms to the type commonly observed in the adult.

Course of the Disease—The classical temperature curve is rarely seen, but in one of my cases, G. L., the fastigium of the disease is well shown in the chart as is also the gradual decline by lysis—then, however, immediately followed a period of irregular pyrexia, and this I have noted in other cases. It is a source of keen disappointment both to the medical attendant and patients, the former prognosticates the end of the attack, only to realise almost at once that there may be another week or ten days of pyrexia to follow. In another case the chart was like that of a low remittent fever, oscillating from 99° to 100° for nineteen days.

Diagnosis—With the assistance afforded by Widal's reaction this ought not to be a difficult matter now-a-days.

Any case of pyrexia, uninfluenced by quinine and lasting for more than a few days, ought to be considered as a suspicious case, and put under (enteric conditions) until a Widal's test has been obtained. It is often not a matter of ease to confine an infant rigidly to its cot when there is only slight pyrexia and the child is apparently not very ill, in view, however, of the importance of absolute rest, should the case prove to be one of enteric fever, it is advisable to keep the infant under strict enteric conditions. Certainly for the first few days an accurate diagnosis is hardly possible, but the following symptoms, although present in most cases of pyrexia, are usually more marked when the fever is of enteric origin, viz, preceding languor, drowsiness, disinclination to play, gradually rising temperature, abdominal distension, looseness of the bowels, character of tongue, the tip being unusually red while the back is furred. Bleeding from the nose is not of such import as in adults.

Treatment—This may be summed up in three words, viz, "Efficient Nursing, Whey." These constitute part of the enteric conditions mentioned before.

Without good nursing very little will avail. It is essentially a condition that requires the most constant and assiduous care on the part of the attendants. The art of nursing an infant through enteric is a very real one, not every good nurse has the requisites necessary, one who may be admirable in nursing an adult through an attack may be quite unsuitable in the case of an infant. Usually two nurses are necessary, one for day and one for night.

Diet—This is the second great factor towards success. Personally, I am an enthusiastic believer in the value of whey both in infancy and in adults, more especially in the former. Under its use, abdominal distension is at a minimum, the stools are less frequent and less foetid, the quantity of urine remains very large, surprisingly so in some cases. Large quantities of whey can be taken, when a similar quantity of milk however diluted or prepared could not be tolerated. Osler and other American physicians insist on the value of large quantities of fluid, in the shape of water, whey, inasmuch as it can be taken *ad lib*, fulfils that important principle. It can be easily prepared and is cheap, infants take to it readily. Although theoretically there is very little nutriment in whey, hardly enough one would imagine to sustain life, yet, practically it has been found to be ample, and my invariable practice now is to give whey and nothing but whey. Gee and Selby have testified as to the value of whey, and I can fully endorse their experience. As regards the quantity actually taken by an infant I find that 25–30 ounces per diem of whey is about the limit. In every case I endeavour to persuade the infant to take plain cold water in addition. Here, the tactful nurse will have her

powers taxed to coax the child to take this valuable cold water.

Absolute rest—At first one is likely to be troubled by the mother, who thinks no harm can come of taking the child up, rocking it, etc., to soothe it if peevish, but if one from the outset insists upon absolute rest in the cot, and can impress the nurse or mother with its necessity, there is usually no difficulty later on.

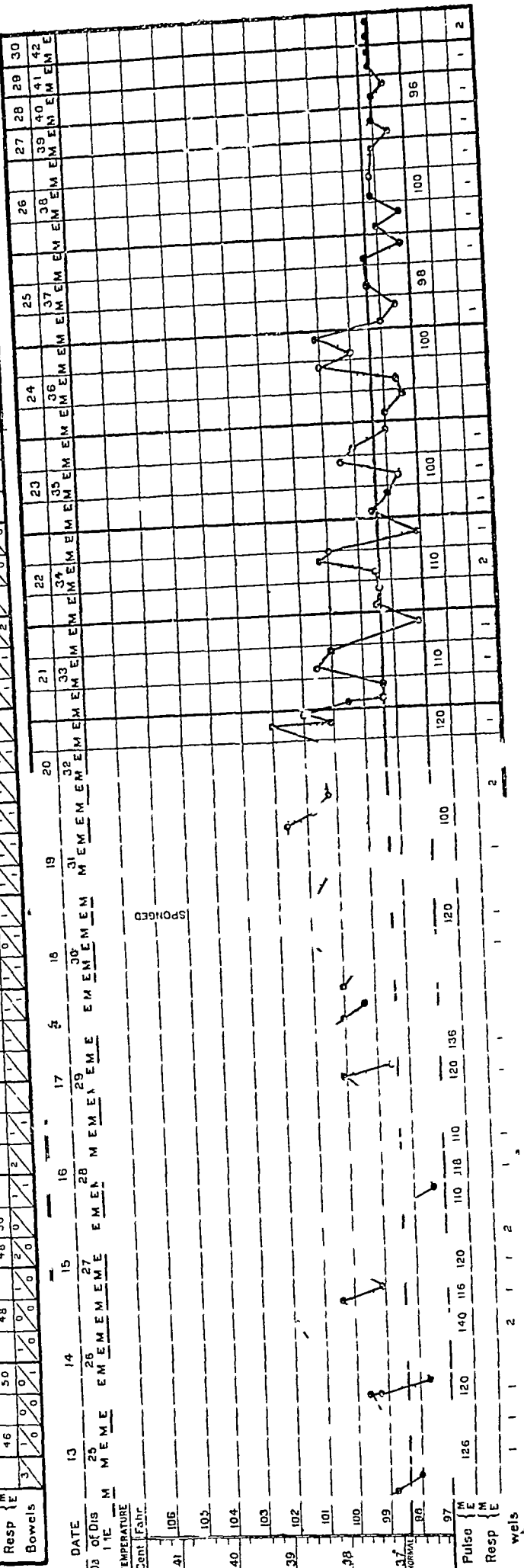
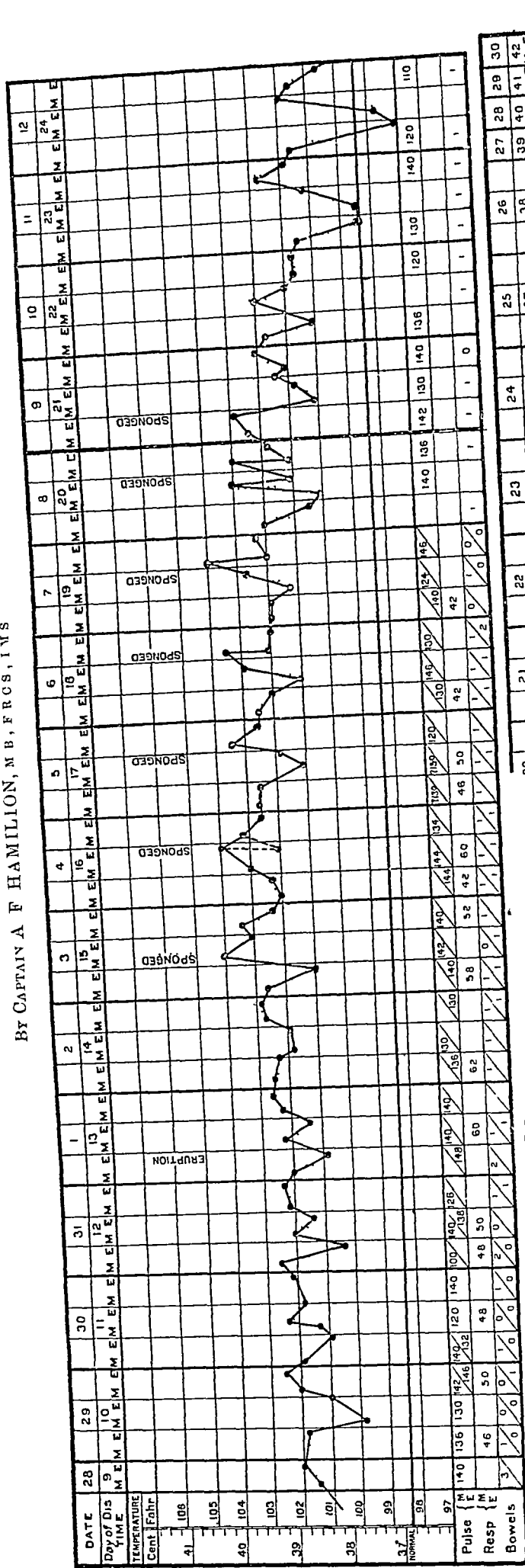
Drugs—Personally I put no faith in drugs in enteric fever, in fact I rarely see the necessity for using any, if the infant is put on whey and under the influence of good nursing at the beginning. In two cases, one being of more than average severity, I used no drug at all at any stage of the illness. If one remembers that one cannot cut short the duration of the illness by a day by the use of drugs, it is rational enough not to worry the hapless infant by any. If the child has been fed on milk or other food leaving large residues in the intestine, with resultant abdominal distension and pain, then recourse may be had to small doses of calomel or castor oil. Of all the drugs, I prefer turpentine, in cases of tympanites and foetid stools. Its action as a diffusible stimulant is also valuable, and I feel confident I have had good results on the few occasions I have had recourse to it. The most convenient preparation is the Spiritus Terebinthinæ given with Spt. Aeth. Nit.

The treatment of Pyrexia—Here again the treatment can be summed up in one sentence "the application of cold." Drugs used to reduce temperature are more pernicious even than in the case of adults, the influence of cold water on the nervous system is well-known, and it is as much for this as for the reduction of temperature that the use of cold water is so valuable. Personally in home treatment I prefer simple cold sponging, thoroughly and methodically performed, to the cold bath—although the latter may be of more service in the rare cases of hyperpyrexia. A temperature of 103° is a good limit to place, above this the infant to be sponged—that is a good simple rule.

Treatment of complications—Prevention is better than cure, our object therefore is to prevent the occurrence of complications such as hæmorrhage, perforation, etc., I have not yet met with either of these serious complications in infants—a few sloughs in the stools, showing that the risk of hæmorrhage is present, calls for greater precautions as to absolute rest and possibly the diminution in the quantity of nourishment for a few hours. Tympanites if obstinate is best treated by small doses of turpentine. Gee says, in his clinical aphorisms, "nothing can relieve the tympanites of enteric fever." I would unwillingly assert anything in contradiction to so great a clinical observer, but my own experience is that

ENTERIC FEVER IN INFANCY

BY CAPTAIN A F HAMILTON, M B, F R C S, I N S



looking back on this case one wonders how an infant could possibly pull through such a prolonged and severe pyrexial disease. For twenty-five days the patient had high fever, and it was not till the 40th day that the temperature remained subnormal. There was no interval of apyrexia, so one may conclude that it was not a case of an early relapse, nor was there any second crop of spots. The most formidable complication was frequency of the stools accompanied by much straining which taxed the infant's strength sorely. In this case milk of Tropic in starch solution was given per rectum with beneficial effect. The infant had unfortunately been fed on undiluted milk for the first week or so of pyrexia before a Widal's test showed the real nature of the complaint, and to this fact I ascribe the irritable condition of the bowel which persisted in spite of a thorough (as far as could be safely done) eliminative treatment. Once thoroughly on whey diet the abdominal symptoms markedly abated. There were three small hæmorrhages, enough to make one proceed very cautiously. The infant ultimately made a complete recovery, having added to its stature in a most surprising fashion. I have noticed this marked increase in length in other cases, an increase which appears to be out of all proportion to the duration of time of the illness.

Conclusions

The following are some of the facts that have been impressed on me as a result of the study of these cases of infantile enteric —

(1) That enteric in infancy (by this I mean up to the age of two years) is by no means so uncommon a complaint as has hitherto been considered. I believe many cases of mild irregular fever are really cases of enteric, very mild clinically, it is true, yet none the less important when one comes to consider the spread of the disease. Certainly in native children in India it has been shown that they may contract the disease in such a mild form as to be running about and playing most of the time, in which case it is only too likely that the disease will be overlooked. Whether European children get it so mildly is not a subject on which I am competent to speak. Personally I doubt it, the mildest of my cases have been severe enough to be confined to bed and treated as obviously "sick," and the severest of them have been exceedingly ill and given one many an anxious moment.

(2) That the prognosis on the whole is favourable, provided that the complaint is early recognised and the patient put under suitable "enteric conditions." With the aid of Widal's reaction now-a-days there should be no excuse in not diagnosing a case.

(3) That whey is infinitely the best diet for an enteric infant. Whey—good nursing—water—a minimum of drugs—sum up in my opinion

the main features in dealing with a case of enteric, simplicity of treatment is thus ensured.

(4) Constant watching over the patient. Two visits a day is the absolute minimum, personally I prefer to see my patient thrice daily. In this way the slightest change can be noted and the onset of a complication forestalled or at least mitigated.

(5) That the length of the disease is more likely to exceed 21 days than not, and one must plan a campaign accordingly.

(6) That it is very unwise to prognosticate the cessation of the attack when the temperature comes to normal, no matter how gradually it may have done so. Irregular pyrexia for another week or ten days seems to be rather the rule than the exception.

(7) That in cases when a stimulant is needed, good brandy, not too much diluted, is the best restorative. In cases seen thrice daily, the effect of repeated small doses of brandy can be well watched and regulated if necessary.

(8) That complications of a serious nature are much less common than in the case of adults, especially when the "simple" treatment advocated above is adopted. Heart failure from prolonged pyrexia, is, I think, the chief thing to guard against, at least in this country.

In conclusion I may add that the use of Benton's Diet Sheets such as are supplied to many hospitals, is of very great value and service in attending a case of enteric fever. By its means one can follow the progress of a case hour by hour and each day compared with the state of affairs on the preceding one.

DELUSIONS IN YOUNG PEOPLE WITH SPECIAL REFERENCE TO THOSE DUE TO DEMENTIA PARANOIDES

BY G F W EWENS

MAJOR, I.M.S.,

Superintendent, Punjab Asylum, Lahore

A DELUSION is usually defined as an erroneous belief of the falseness of which its possessor cannot be persuaded of by reasoning nor by the evidence of his own senses, and which is contrary to the general belief of persons of his own race, age, standing and training.

A person who believes that he can raise men from the dead or one who states that he is a canary or another who believes that he has no feet, when obviously possessed of the usual number, can reasonably be said to be suffering from a delusion and from that fact deduced to be insane, though, on the other hand, it by no means follows that all insane persons have a delusion—very many have none whatsoever.

Delusions are, however, met with in a very large number of the different varieties of insanity, yet it may be said roughly that relatively they are most uncommon in young insane adults, and it is precisely to their presence in such people

in this country (India) that I now wish to refer to, and to call attention to some very striking examples that have lately come under my notice

In India as a rule the persons most commonly exhibiting well marked delusions are those of middle age or advanced life suffering (1) from melancholia, whose erroneous ideas cause them to interpret their depression and misery as due to an imaginary ailment, or to some curse or spell put on them as a result of their own folly by a faqi, a pu, or other religious leader, (2) those affected with mania either "idiopathic" or of toxic origin, more especially when this has been prolonged and the acute motor and emotional conditions have subsided and a "chronic" condition remains, the delusions may be of any kind and on any subject, and (3) those cases of chronic systematised delusional insanity—the classical condition beloved of novelists—when a man otherwise to the world "sane" has some striking, coherent, unchangeable delusion governing his thoughts and conduct, and lastly in general paralysis of the insane among Europeans. It is not my intention to attempt a description of these conditions, but to refer to delusions in young insane adults in whom, as already stated, they are relatively most uncommon, but equally in whom we sometimes meet with most striking instances when the diagnosis of the affection causing them, and the prognosis to be drawn is often a matter of difficulty. These are chiefly due to the existence of a particular disease which is a variety of insanity termed somewhat uncouthly and incorrectly Dementia Paranoides, seemingly not yet sufficiently recognised here, and the one which I wish to attempt to describe

In youth and in young adult life we do not meet with general paralysis of the insane nor with ordinary chronic systematised delusional insanity, and chronic mania in early life is very uncommon. Congenital idiots, imbeciles and persons of feeble intellect do not show delusions. These are, however, sometimes exhibited by young persons suffering from (1) acute (not simple) idiopathic mania, not at all a common disease in India where its feature of frequency, as seen in Europe and America, is taken by toxic (drug) insanity—the later condition being seen after exhaustion. A very striking example of their occurrence in this condition (idiopathic acute mania) was witnessed by me in a sleek Jat boy of 16, who asserted that he was the wisest and most beautiful specimen that ever lived, had such strength that he could lift a buffalo by his tail, could read any book in any language (he was quite illiterate) and could perform other wonderful deeds that I do not now remember. But such cases shew at the same time the peculiar undue restlessness and excitement, the rapid flight of ideas, sleeplessness and general loss of control which is characteristic of this malady, and then recognition is

not matter of much difficulty (2) (Indian Hemp; Toxic mania is very frequent in the young, to their irresistible restlessness, disordered appearance, insolent and bullying manner, their reckless violence, rage and noisy aggressiveness, their rapidity of speech and movement they sometimes add vague delusions of exalted power and strength, though these are much more frequent in the subacute or chronic form due to prolonged poisoning (never systematised). They are, however, in the chronic form much in the background and far less evident than the complete disorientation and the vivid amazing hallucinations which are so characteristic of Dementia Paranoides, examples of these delusions are those of women calling to them, Goddesses, Kali and female Bhuts annoying, touching and speaking to them—the delusions when present are almost invariably in association with and arise from these causes. Still they do sometimes resemble the disease which produces delusions at the age of which I wish to speak. The following is a fair example of those seen after chronic saturation with the drug when the emotional condition has subsided, and a marked delusion influencing conduct seems the chief feature—

L R This man after admission was recognised by a keeper as a distant connection who, after years of dissipation and indulgence in charras, had left his home and remained wandering for many months

He came in the first instance to a European bungalow and demanded a talwar, as he said that he had a "mission" to use it on somebody—an attempt was made to secure him but he escaped. The next day at a railway station, however, he made the same request to a policeman who was fool enough to give him his sword, whereupon L R immediately cut down two unoffending men standing by. He was adjudged a criminal lunatic and confined here from the 15th September 1907. On examination he was a well-made young man, having a rather worn anxious expression with peculiarly irregular prominent teeth, very flat feet and very everted lips. It was most difficult to make him concentrate his attention. His speech was rapid and always had reference to some religious life, as to seeing his Guru and "praying for justice." In addition he expressed his belief that donkeys and many other animals talked to him and urged him to preach religion, that he was Guru Nanak's Chela and, therefore, had a mission to preach to anybody and also to use a talwar on anybody and that all the Sahibs had given him an order to use one. He was clean in his habits and wore clothing.

He remained practically in this condition until April 1908 when he began to improve and by August was practically sane, early this year he has, however, relapsed a little and is now somewhat weak-minded, and his delusion or rather part of it, that he understands the language of

all animals, has again become prominent, but he seems to have no longer a desire for a talwar.

The next most frequent condition to toxic insanity here is that form of exhaustion psychosis seen in young and adult life when a patient, after an acute illness (often malarial fever) or childbirth, becomes what the majority of people are pleased to call maniacal—being restless, absolutely unable to sleep, refusing all food, rolling from side to side, or, if able to do so, wandering about, never still or silent, shouting, singing, declaiming, naked, dirty, regardless of anything or anybody, insensitive to injury, cold or heat, and typically destructive, tearing in pieces all their clothing and indeed everything they can find. The majority of these patients are so noisy and excited that it is difficult to follow or understand them, but many, perhaps all, do have delusions—they will tell you that their eyes have been taken out, that they are in somebody's house (they are always completely disoriented), that the men are women disguised, etc., etc., but these statements are not very prominent, being much less so than the hallucinations of taste, touch, hearing and their general restlessness, irritability and energy of declamation and destruction—so that they cannot well be mistaken. Cases of simple melancholia with delusions of having offended some powerful being, of being under a spell or ban, of being doomed to die, etc., do undoubtedly occur at this age, but you will almost never see them, for the simple reason that, being easy to deal with and not a trouble, their relations, with the dislike of any institution characteristic of this country, prefer to keep them at home. The wanderings of the rare epileptic who interprets the injuries he has received in his fits to ill-treatment by others excepted, you will find that having excluded these diseases (and some of the cases of chronic hemp drug insanity need very careful examination to prevent mistakes) all young insanes, coming to you with a delusion, are instances of a form of Dementia Precox, spoken of on the continent as Dementia Paranoides.

It is this affection, very many cases of which exist, that I particularly desire to allude to when youths or adults fairly quiet, and to untrained observation, "sensible," make on examination the most extraordinary and usually absurd delusionary statements. I do not mean to say that such cases never show any emotional disturbance, or any flightiness or absurdity, they may have done so, most of them do, but the fact remains that a large number will only come under your observation when all this is in the background and forgotten or ignored by parental fondness, or, like most other facts of diagnostic importance, studiously concealed by those obliged to bring them. In these patients their absurd delusions combined with their quiet demeanour and passive bearing is often very striking. It will usually be found, however, that the delusions are based upon and seem to arise from hallucinations,

and this fact, together with the demeanour and conduct of the patient and the rapid and progressive failure of intelligence and volition they exhibit, if watched for any time, is very characteristic and typical of the disease under discussion.

This Dementia Paranoides is briefly a disease of early adult life in which a progressive diminution of intelligence and failure of judgment and reasoning is very prominently marked at first by its association with delusions. These delusions are formed on a basis of the hallucinations that are an essential feature of all three varieties of Dementia Precox. They are absurd in character, often changeable never systematised, and, later in the disease, fade very much into the background and may practically disappear.

The malady is of rapid course (two years usually being sufficient for its full development), and it is absolutely incurable. There is generally a markedly neurotic family heredity and "stigmata" are frequent. What usually happens is that a young person becomes changed, he may have been always shy and reserved, but he now seems more so, he is altered and in particular, he cannot follow his occupation though he does not, like a melancholic, plead illness as the reason but rather gives none and wanders stolidly idly about. If a student he leaves off reading and attending classes, if a zemindar he cannot labour but wanders aimlessly about or lies idly aside—if remonstrated with he does not excuse himself but seems indifferent—very frequently he wanders away from home, and it is for this reason usually that he is brought for treatment, as it is to an ordinary native's mind the most incomprehensible act and one savouring strongest of lunacy.

Often also you will be told that it is on account of having done some foolish and particularly silly act (tied his little brother up in a parcel—gone into a dispensary and locked himself in—climbed up a signal post and taken down a lantern—gone to sleep in a guard's van—all of which are actual instances that have come under my observation) which necessitated his examination—I say he for though this disease is stated to be commonest in women it is invariably in the male in this country. He is usually a stolid well-nourished youth, very dull with absolutely no knowledge of his disease, showing the marked apathy characteristic of it, an indifference to everything, a want of energy with a general untidiness of person and dulness of manner. Question him and he will calmly tell you (not gratuitously like a maniac and not blusteringly like an Indian Hemp case) that he can transform any object into something else, when asked how he knows that, he will answer that it is because he hears folk behind him telling one another and the world in general that he can—and this association of delusions with the hallucinations from which they arise is very characteristic and almost invariable. Or, another will inform you calmly, or at the most

with a silly grin, that his own feet do not belong to him, that one is a Bengal foot and the other a Bombay foot, and, he knows this because he "sees always a child's foot" before his eyes. Or, another will say that he never was born, he "grew"—can make men out of dirt, has made more than he could ever count (*beshumar*), can make gold out of dust. That he is a Mahdi, that God appears to him at night, and says so, that the angels come to him, etc.

The delusions are always absurd, they are never clearly marked out, there are usually several, they are always *plus* hallucinations and often show a tendency to change and vary. With all there is no emotional change, the youth is impassive, quiet, never angry or very sad, he may indeed in some cases have an air of reserve of power and knowledge, but in general the aspect is that of a dull apathetic youngster, indifferent to everything. The mouth is open, he makes no effort to hold himself upright but lolls about, and in the asylum never asks to go away or to see his relations and, while you talk to him, asks for nothing. A little conversation will assure you that judgment and reasoning are indescribably feeble, and yet you will be struck with the fact that his memory is usually excellent, that he understands perfectly all that you say to him, that he will listen quietly to you, and that he is perfectly oriented (very unlike a case of toxic insanity), that he knows where he is and by whom he is surrounded and that he is perfectly clean. That the reflexes are normal, salivation is not in excess, and there is no apparent defect of sensation. Keep such an individual under observation however, and in the course of a few months you will see him become, week by week, progressively more stupid and duller, more indifferent, apathetic and feeble-minded, while coincidentally the delusions seem to fade or, at any rate, to become less obtusive and often to require close questioning to elicit. Rapidly he will attain the usual condition of advanced weak-mindedness seen as the terminal stage of Dementia Præcox, though there are not as a rule the filthy habits so often met with in these cases, nor are there the frequent outbursts of destruction and wild excitement seen in the ordinary forms of that malady. In this last stage, without any will of his own and unable to provide for himself, he becomes a foolish drudge without desires or volition and will remain in that state until carried off by some intercurrent disease. And it may roughly be said that the more prominently associated and the more varied the hallucinations are, the more rapidly does the disease progress to this condition, for some of these cases are seen, and are then very striking, where hallucinations are much in the background and require great care to elicit—they are always present. In these the delusions are more marked, more especially so, as the amount of intellectual impairment is not so evident, and the delusion

is so much the all-pervading feature, that these cases exactly resemble the ordinary form of Paranoia (chronic systematised delusional insanity) though there is not the marked suspicion, nor feeling of exasperation at persecution and annoyance so characteristic of the latter, (but it must always be remembered that cases do occur if this disease commences at an early age). The absolute non-existence of hallucination and apparent retention of perfect intelligence would then be the only certain means of diagnosis from the preceding. One or two cases also have come under my notice, in whom the affection seemed to remit for a few months with cessation and, in one case, concealment of the delusion, but, speaking generally, as already stated, this "Dementia Paranoides" is absolutely irrecoverable from. I give a brief epitome of a very fair example of the malady which will show the senseless delusions of these people.

G M, a Kashmiri, settled in Amritsar, was admitted here as a criminal lunatic charged with attempted housebreaking, having been found on the upper story of a house at night. The crime was soon explained on his arrival, for it was found that his one and all-absorbing idea was to climb to the roof of any building and destroy the tiles. He was a pale, very stupid, dull youth, most difficult to arouse. He had peculiarly large ears, each of which possessed marked Darwinian tubercles. On conversation he explained that a *Geeda* *Singhia* species of plant, that certain Indians carry apparently as a "mascot," had changed his name, "that the Amu of Afghanistan had troubled him," that he saw Mecca at night—every night—had seen every country 'Pindi, 'Room' and Kashmir," etc, etc. It appeared that he had wandered away from home, given up work, and had previously been gradually becoming stupid and had had occasional fits of destructive violence in which he had destroyed his clothing and bedding. In the asylum he was very stupid and dull, could not learn any trade and was frequently dirty in his habits, but he was oriented and had a good memory. He was always, as already mentioned, climbing to the roof.

During 1907 he gradually became more stupid and dull, and has been for some long period dirty and apathetic, with an occasional foolish smile, the only sign of intelligence, usually standing about wrapped in a blanket, indifferent to everything and obeying anybody. His delusion had faded and left him in about six months after his admission.

The next is equally characteristic.

M A, a medical student brought on 30th May 1908 by his father who complained that for the last three months he had refused to live with his parents, had left his home and ran away, having previously relinquished his studies. The boy gave as his reason that his father had "turned against him." On arrival, M A a quiet, tidy, very apathetic youth, declared in an indifferent manner that he had "spiritual power" by which

he could turn men to stone, that he could make a table into a cannon—had frequently done so, and continually heard people in the streets behind him asserting that he could do so.

He remained in the asylum for some few weeks, always the same frequently a little self-satisfied and smiling but, otherwise, indifferent and dull. At the earnest request of his father the latter was allowed to remove him but, within a week, he again left his home and was next heard of as having started for Cabul, as a spirit had told him that he had a mission to show his wonderful powers to the Afghans. Since then naturally no further news has arrived of him.

In conclusion I give a brief summary of a case, interesting both from the fact of the delusions being all apparently unaccompanied by any other intellectual disturbance, and the difficulty there is still, after prolonged observation, of deciding whether it is really a case of chronic Indian hemp poisoning or one of Dementia Paranoides undergoing a remission. It is that of B R, a young Khatin, aged 20, a clerk in a Government office, who was admitted here on 9th September 1908.

This man was found by some others to have suspended his little sister, aged 7, by the feet, head downwards, to a mulberry tree near the river—was swinging her backwards and forwards, "the girl was naked except for a small handkerchief round her waist"—"she was crying." The men told him to desist but, as he only replied I am doing my business and continued as before, they took the child away by force.

B R then tried to jump into the river but was prevented. He was in consequence brought here. His case is complicated by the fact that it appears that, for a long period, he had been taking *charas* to excess, but it is significant that he had done no work for two years, and that his family stated that he was in the habit of giving "much trouble" at home.

He is a slender young man, perfectly quiet and collected, answering all questions readily, clean, respectful almost servile—oriented as to place, but quite unable to give the date or day of the week—well behaved. He had perfect memory of all that he did to his sister, so that it was obviously not an act done in *charas* intoxication. On questioning he states in a quiet collected manner that he did this to her "for her good" to prevent her being wicked but cannot explain himself. He has a delusion, that is difficult to understand, about "*ilm*" or something inside him which orders him to do various acts, he also declares that he receives direct orders from God to act in a certain manner, that he can show God to anyone in about a week's time, that he can absolve anyone from their sins and that "all men know this." But apart from the delusions and his accounts of hallucinations of hearing, he speaks perfectly sensibly, has good memory, complete control over his attention and can understand all said to him. Physically he

is well made, almost good looking, but the two sides of his face are slightly unequal and the right occipito-parietal region is smaller than the left. The ears are very outstanding, the left more so than the right. The feet are flat and there is marked hyperextensibility of the fingers, and there is a little congestion of the conjunctivæ, limited to the exposed parts such as is common among consumers of Indian hemp.

No family history is obtainable.

He has remained in the asylum to the present time quiet, well behaved, clean and sensible with no perceptibly weakening of intellect and has indeed lately denied his delusions, but his manner and his obvious desire to escape from the asylum lead one to suspect that he may be concealing these latter. He now has apparently lost his hallucinations, and the interest he takes in his future is very unlike the usual habit of any sufferer from Dementia Præcox.

SPORADIC KALA AZAR IN BEHAR

By F MILLS,

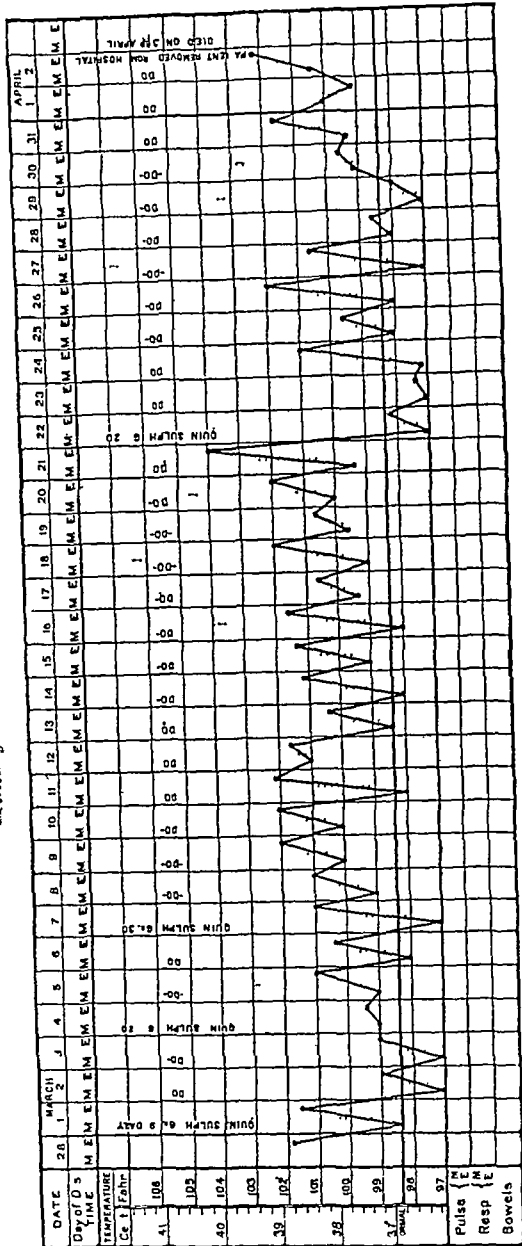
Military Assistant Surgeon, Pusa

THAT Kala Azar exists in an endemic form in the province of Behar, there can be no shadow of a doubt, that its prevalence has not been generally recognised nor mortality from this cause noted is also evident, from the fact that, as far as I have been able to ascertain from enquiries made, the neighbouring districts do not record any authentic cases. Major Rogers speaks of it as occurring "less frequently in Behar," and Dr Basu of Patna mentions having seen some cases from Mozafferpur amongst his out-patients. Colonel Lukis, in his report of the Medical College Hospital for 1908, also records one case from Behar. The death rate from malarial fevers in most districts is usually high, and it would be interesting to know to what extent unrecognised Kala Azar contributes to swell the totals. Many of the thousands of patients annually passing through the various dispensaries and treated for malarial fevers and malarial cachexia would, on a more careful study of their clinical symptoms, no doubt prove to be cases of advanced Kala Azar.

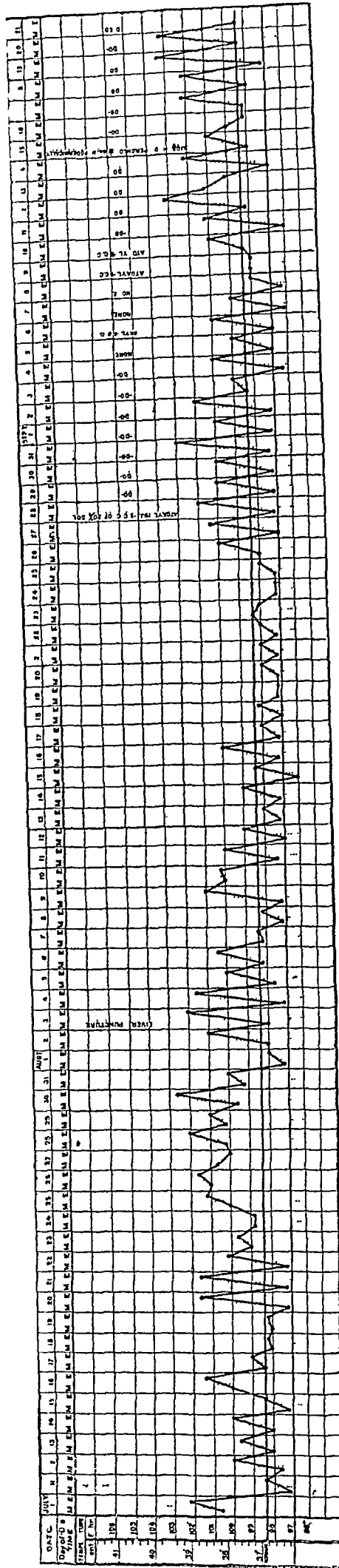
My attention was first directed to the possibility of the disease existing in these parts from the fact that, of several cases treated in the out-door department of this hospital for so-called malarial fever, the peripheral blood in 33 per cent of the patients examined showed no malarial parasites, and in some of these the fever was resistant to the action of large doses of quinine. This led to the suspicion that other factors than malaria might be responsible, and careful observations made since March 1909 served to confirm my suspicion. In March one case was admitted and kept under observation till the date of his death, and, though the diagnosis could not be verified by spleen puncture,

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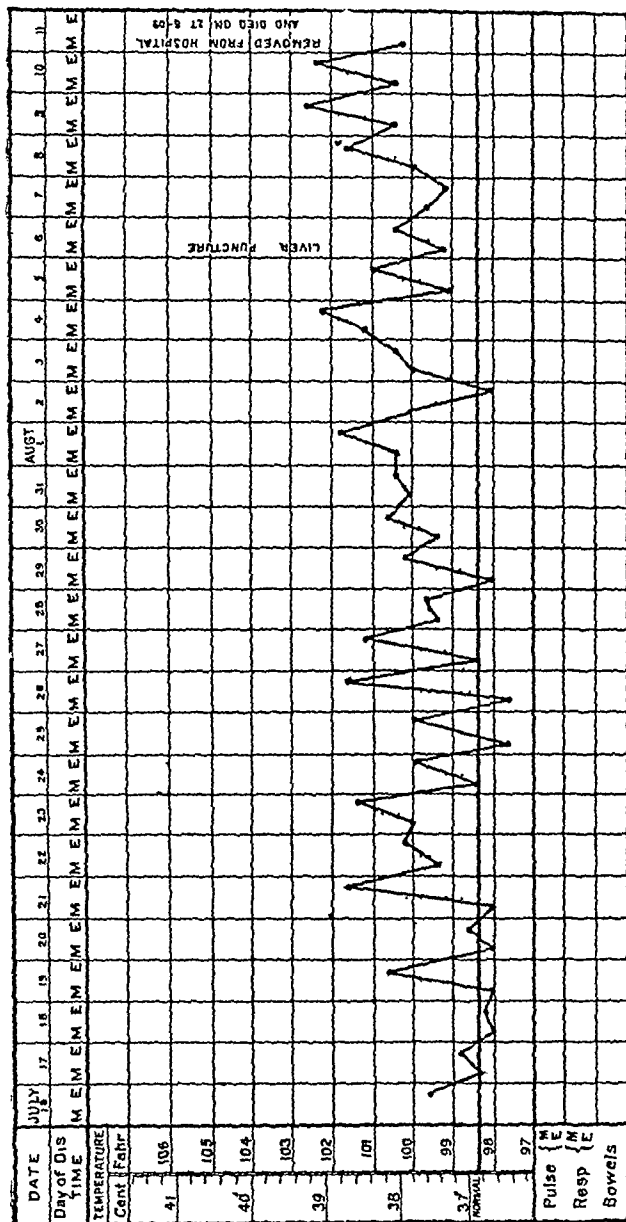
CASE I



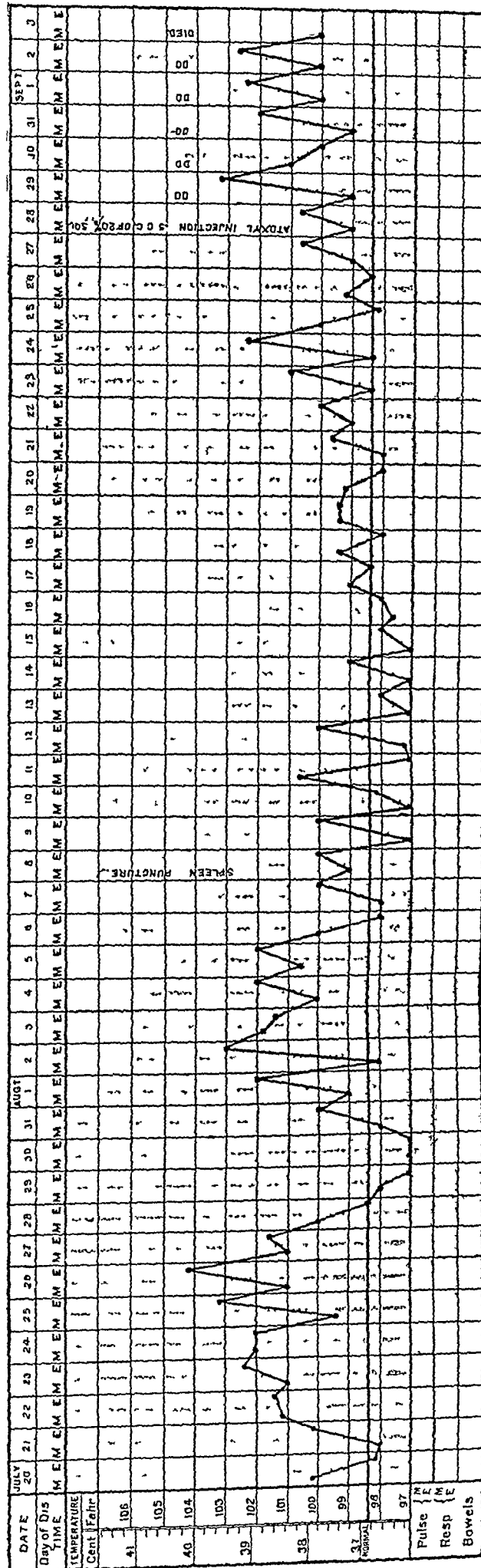
CASE II —This case had 20 to 30 Grains of Quinine daily during his stay in Hospital

SPOTADIC KALA AZAR IN BEHAR

By F. MILLS,
Military Assistant Surgeon, Pusa



CASE III — She got 12 to 15 Grains of Quinine daily during her stay in Hospital



CASE IV — This case had 20 to 30 Grains of Quinine daily during her stay in Hospital.

he was unquestionably suffering from Leishmaniasis, as a perusal of notes on his case taken in conjunction with those that follow will show. The next three cases were admitted in July, and the diagnosis in each was confirmed by spleen or liver punctures. The fifth case seen in September died on the fourth day after his admission to hospital, the diagnosis being confirmed by spleen smears made *post-mortem*. From inquiries made I find that there have been other sufferers from the same complaint in the village and bazar in which cases Nos I and III lived, and in case III two other members of the family have died from the same complaint within the last two years, pointing clearly to house infection. Cases I to IV have been born here and have never left these parts, and case V was away only for three months at Jalpaiguri, where he states he was first attacked with fever. It is doubtful whether the last case contracted the disease at Pusa or Jalpaiguri, but assuming that there is an incubation period, and accepting his statement that the fever commenced soon after his arrival at the latter place, it may be concluded that the infection occurred at Pusa.

As this hospital is open only to Estate employees and those connected with the Agricultural Research Institute, a limited number of people seek relief, and, generally speaking, patients outside a radius of two miles of Pusa are not seen by me.

Judging from the above facts, it may be assumed that the disease is far more prevalent here, and therefore in the Province, than is generally supposed, and whether it is only sporadic or shows a seasonal prevalence, when it takes on an epidemic form, is yet to be ascertained. The bed-bugs which infest every native hut in the neighbourhood have been identified by Mr. Howlett, Second Imperial Entomologist at Pusa as *Cimex rotundatus*, and if they alone are responsible for conveying the disease, it is easy to imagine that given favourable conditions of soil and temperature, in a people who are susceptible to its invasion, with bad harvests and unhealthy years, how easily, in this densely populated part of the country, an epidemic might at any time be lighted up and spread insiduously along the beaten tracts as it has done before in the great Assam and Burdwan epidemics, so graphically described by Rogers. Further examination of the fever mortality *per mille* of this Province might throw some light into the prevalence of the disease in Behar.

The following symptoms and complications were common to all the cases—Continuous fever of an alternating remittent and intermittent type ushered in with rigors during the early stages of the disease, yellow conjunctiva, liver enlargement, great splenic enlargement, progressive debility and emaciation with very little corresponding anæmia, albumen in urine, appetite only slightly impaired, little or no

constitutional disturbance during the periods of high pyrexia, and cedema of the lower extremities.

Special symptoms and complications—Dysentery in three cases, epistaxis two cases, pain from duodenal ulcer two cases, skin pigmentation three cases, urine of low specific gravity three cases, hyperæsthesia of lower extremities two cases, general cedema two cases, pseudodiphtheritic tonsillitis one case.

Although the peripheral blood of all these patients was frequently examined, no malarial parasites nor Leishman-Donovan bodies were found. Liver puncture was made in two cases, and spleen in one, with the following precautions—15 grains of calcium chloride was given three hours before puncture and the dose repeated after an hour. A small hypodermic needle with an all-glass syringe was used, skin and needle were thoroughly sterilized, the needle was smartly introduced into the part selected and blood rapidly withdrawn—the patient was cautioned to make no movement at the time of introducing the needle, and after its removal was kept lying for six hours on the punctured side. A firm abdominal binder was applied and the patient kept in bed on fluid food for 24 hours. There were no bad results. One case had pain for 48 hours over the site of puncture but no rise of temperature afterwards.

Films were coloured with Giemsa and Romanowsky's stains and gave excellent results, the parasites seen were generally large oval free forms.

The slides from cases II, III and IV were sent to Kasauli and my diagnosis confirmed by Col Semple, M.D., in case IV he remarks that "after prolonged search two suspicious bodies were found." As this man subsequently died in hospital and a *post-mortem* examination was performed, I was enabled to make several smears from the liver and spleen in which numerous Leishman-Donovan bodies were found. In all the smears blood platelets were exceptionally numerous, and in one case the blood was very watery and spread badly on the slides. Case V who died in hospital four days after admission, and in whom no spleen puncture was made, showed abundance of Leishman-Donovan bodies in smears made from his spleen *post-mortem*.

As only five cases have been under observation here, there is not sufficient data to note the seasonal incidence of the disease, but all seem to have first suffered from fever in the cold weather which dates the beginning of their attacks. Of the five cases reported two occurred in children, two in young adults, and one in a man of 25 years. Four were Hindus and one a Mahomedan. The mortality in this series was 100 per cent.

In summing up I am of opinion that in these parts cases coming under observation with enlargement of both liver and spleen, great debility and emaciation, with a history of prolonged

fever and resistant to the action of quinine must be viewed with suspicion, an examination of the peripheral or spleen blood if positive, confirming the diagnosis, but a negative result on the other hand, after one or two examinations only, by no means disproving the existence of the disease.

Brief notes of the cases might be of interest.

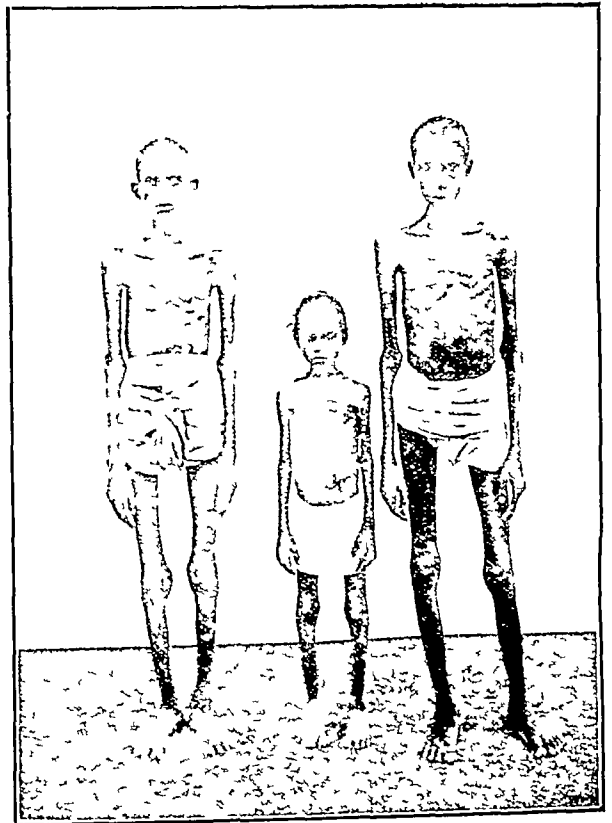
Case I—Bogiath, Hindu male child, age 10 years, was admitted on 1st March, 1909, with fever, enlargement of liver and spleen, œdema of extremities and ascites. The fever commenced six months ago with daily rigors and regular intermissions, but became continuous during the past two months. The spleen extended down to the umbilicus, and the liver could be felt $1\frac{1}{2}$ inches below the costal arch, hæmic murmurs could be heard over the præcordial area, breath sounds were deficient at both bases. The tongue was furred, bowels regular, conjunctivæ yellow but no jaundice. There was great debility and emaciation, and some anæmia. The skin of the face was discoloured, and he had some hyperæsthesia of the lower extremities. The urine had a S G of 1012, acid reaction, and contained albumen and bile.

Under large doses of quinine there was some improvement during the first week of his stay in hospital, but the fever rose again, he became rapidly worse, epigastric pains became frequent and severe, a mastoid abscess threatened, the general œdema increased, at this stage there were daily attacks of epistaxis when he lost much blood. He was removed from hospital by his relatives on the 2nd April, and died the next day.

The peripheral blood, frequently examined, showed no malarial parasites nor Leishman-Donovan bodies, as he refused spleen puncture and no *post-mortem* was made, the diagnosis could not be confirmed microscopically, but a review of his symptoms and the typical chart leave no cause for doubt as to the nature of his complaint.

Case II—Jhapti, Hindu male, age 20 years, is the first figure on the right in the photograph. He gives a history of fever of seven months' duration commencing with rigors, and apyrexial periods of four and five days' duration, for the last three months the fever became continuous, the patient was very weak and emaciated, liver and spleen were both much enlarged, the latter could be felt one inch below the umbilicus and the liver one inch below the costal arch in the mammary line. Skin of face and dorsum of hands pigmented, conjunctivæ yellow—no jaundice, little or no anæmia, other organs normal. There was no history of house infection, and he has never been out of these parts. The temperature chart shows the characteristic fever typical of Kala Azar, there have been periods of steady improvement and frequent relapses. The urine examined weekly has been of low specific gravity, never over 1012, with

an acid reaction containing albumen and bile, the albumen is constant but variable in quantity. There have been attacks of epigastric pain, and he had dysentery while in hospital which yielded to Ipecac and Bismuth. For about a fortnight he had some hyperæsthesia along the anterior aspect of both legs, and latterly both feet became œdematous, he lost a good deal of blood on two occasions from epistaxis. The patient left for his home on the morning of the 21st September and was brought back to hospital the same evening, where he died at 7 p.m. The *post-mortem* examination showed great enlargement of the spleen, which weighed 2lbs 4 ozs, the liver also was enlarged and weighed 4lbs, other organs normal. Two small ulcers were found in the duodenum, the upper part of which was much



congested, the cæcum and adjacent part of the ascending colon were deeply congested, as was also the sigmoid flexure, and there were traces of old dysenteric ulcers along the course of the sigmoid. The mesenteric glands were enlarged and looked like black beans between the layers of the mesentery. The peritoneal cavity contained $1\frac{1}{2}$ pints of serum, and the pericardial sac 10 ounces. 20 to 30 grains of quinine daily did not control the fever, and 15 atoxyl injections containing 5 cc of a 20% solution had been given without any marked benefit. Peripheral blood examined frequently showed no malarial parasites nor Leishman-Donovan bodies. Artificial pustulation was produced experimentally over the splenic area, and

smears made from the exudate gave negative results

A liver puncture, made three weeks after his admission, showed Leishman-Donovan bodies in abundance, smears were sent to Kasauli and the diagnosis confirmed by Colonel Semple, M D

Case III—Athbarai, Hindu female child, age 10 years, is the centre figure in the group. The history of the commencement of her attack was the same as that recorded for the previous cases, fever was of 9 months' duration, liver and spleen were both enlarged, she had a mild attack of dysentery while in hospital, and shortly before her discharge the feet became oedematous and face puffy. The urine had a specific gravity of 1024, and contained albumen and bile. She died out of hospital 16 days after her discharge, from a recurring attack of dysentery, and general anasarca. A brother and sister had died from the same complaint within the last two years. Peripheral blood, frequently examined, gave negative results—smears from a liver puncture made on the 6th August showed Leishman-Donovan bodies in abundance. Slides were sent to Kasauli and the diagnosis confirmed by Colonel Semple, M D

Case IV—Lal Behari, Hindu male, age 16 years, is the left figure in the group. The invasion stage of his fever was similar to the other cases, it continued for five months. The spleen and liver were enlarged, and the urine contained albumen. Complications in this case were diarrhoea, a small pneumonic patch at left base, and an attack of pseudo diphtheritic tonsillitis four days before death.

No malarial parasites nor Leishman-Donovan bodies could be recognised in smears made from his finger or spleen blood while he was under treatment, and scrapings from an old ulcer over the splenic region also gave negative results, films of spleen blood were sent to Kasauli for Colonel Semple's opinion, who discovered two doubtful Leishman-Donovan bodies.

The autopsy revealed nothing of special interest, but smears made *post mortem* from spleen scrapings showed Leishman, Donovan bodies in abundance.

Case V—Akloo, Mahomedan male, age 25 years, was a resident of Pusa. His fever was of 10 months' duration, with a history of early rigors. He went to Jalpaiguri in December, 1908, where he states he was first attacked. Since his return to Pusa six months ago his fever has been continuous. The liver and spleen were enlarged, he was suffering with dysentery on admission, and the lower extremities were oedematous. The urine was of low specific gravity and contained albumen.

The patient died four days after his admission, and smears made from spleen scrapings, *post-mortem* showed Leishman-Donovan bodies in

abundance, both free and in the endothelial cells.

EXPERIENCES OF MICROCOCCUS CATARRHALIS INFECTION

By LT-COL J R ROBERTS, M B, F R C S (Eng),
Indian Medical Service, Indore.

I CAME to India a little before the advent of true influenza. It appeared in 1889 soon after its widespread occurrence in Europe. In those days it struck me that colds and catarrhs were more common in this country than one had expected, and that these colds occurred in epidemic form in Indian stations. Following in the wake of influenza we have, I think, been inclined to associate these catarrhs, which have always been with us, with influenza, though we recognise they are never of the same severity, or so often followed by the same unpleasant sequelæ, and in fact, even clinically considered, must be a different disease. In the laboratory here we have been examining many specimens of sputa during epidemics of this catarrh, and have found the cause to be due not to the bacillus influenzae, but to the micrococcus catarrhalis. This coccus is also a secondary and very destructive infection complicating tuberculosis of the lung in our cases. Again, we find it to be the infection in cases of chronic bronchitis, which are so common in all classes of patients—cases that sometimes develop asthma associated with the bronchitis. However, in catarrh due to micrococcus catarrhalis another state of affairs exists, in that the micrococcus catarrhalis is the primary infection, and other secondary infections, principally various staphylococci, are also present, the treatment of these latter becomes just as important, or more so, as that of the primary infection, when we come to deal with these cases by vaccine therapy.

The symptoms of a cold due to micrococcus catarrhalis are, I think, sufficiently diagnostic in most cases to lead us to infer that the agent is this infection, without in all cases examining the sputum. The catarrh begins in the throat, spreads upwards to the nasal cavity, down into the larynx, trachea and larger bronchi, is accompanied by some fever, malaise, sometimes gastric catarrh due to invasion down the oesophagus, and is followed by cough, and expectoration, which becomes purulent, and lasts for ten days or more. Although a minor ailment, it is most unpleasant, especially as the sufferer has to drag through his day's work if he possibly can. I have often noticed that household servants are those first attacked, spreading the catarrh to their masters. Moreover during an epidemic a dinner party is followed by a further spread among the guests. The obvious inference is that a sufferer during conversation sprays the food handed round the table with his culture, which is then conveyed directly to his neighbour's throats. It is a common saying

that a cold goes round a household, it would be more correct to say that it goes round the dinner table. I believe that in the same way tuberculosis is spread more by dining with the tuberculous than by living among them.

There are persons among us, according to my experience, who are veritable mines of micrococcus catarrhalis, continually suffering from relapses themselves they hold the same relation to this infection as "carriers" do to typhoid, and their appearance in a household is particularly unfortunate to young and old.

Dr. R. W. Allen's contributions to the literature of "colds" is very interesting reading, and it was on the lines indicated by him that I found catarrhalis to be the more common infection in this country, and fortunately for us it is one that can be treated by a stock vaccine. Of the various ways of treating a cold, none in my experience is equal to that of vaccine therapy; it appears also to create a certain immunity lasting for some time. Up to date one of our cases has been 18 months without a relapse, that previously had been most frequent, and this was done by two injections of the vaccine.

An injection of catarrhalis vaccine will abort a commencing catarrh, or place a sufferer of two or three days' suffering, well on the way to convalescence in a few hours, certainly under twenty-four, and will also clear up a case of several days' standing. Some cases are of course disappointing, but it is due to the failure of the immunisation process from age or other causes. In order to create a more lasting immunity it is necessary to repeat the dose after some ten days. We have begun with doses of 125 millions of the dead cocci for adults. There is no local or general reaction, the patient must be warned not to expose himself during the day of the injection, especially in the cold weather; but, as micrococcus catarrhalis infection is just as common in the hot weather, in that season no particular care need be taken.

Into the process of the manufacture of the vaccine I need not enter as it is fully described in Dr. R. W. Allen's work on Vaccine Therapy. We have made large stocks for distribution in sterilised glass capsules, to be injected with the usual aseptic ritual.

Indiscriminate use of the vaccine in the chronic cases of tracheitis and bronchitis with or without asthma is not recommended. Here the secondary infections have to be worked out by means of cultures, each separated and identified, and a vaccine manufactured from each. As the secondary infections are mostly staphylococci and as staphylococci have such numerous strains, it is best to inoculate these cases with their own strains. However, in general practice the use of a polyvalent staphylococcus vaccine with that of catarrhalis can, I think, be tried with a fair chance of improving the condition of the patient.

AN OLD BOOK

By M. FOSTER REANEY,

CAPT., I.M.S.

At the present time, when sanitary schemes are much to the fore, a short note on a book published more than sixty years ago may not be out of place. The work in question is entitled "A Treatise on the Public Health, Climate, Hygiene and Prevailing Diseases of Bengal and the North-West Provinces," by Kenneth Mackinnon, Surgeon and Medical Storekeeper, Cawnpore. It was published at Cawnpore in 1848 at Rs. 10 per copy.

The book opens with a list of 139 persons, whose subscriptions made its publication possible. It is divided into four parts dealing with Public Health, Climate, Hygiene and Prevailing Diseases as the title implies.

The author, in the part devoted to public health, first draws attention to the difference between what he had been led to expect and what he finds actually to be the case. For instance, contrary to the general authority of opinion at that time, he finds the following diseases quite common—stone, Bell's paralysis, "pleuritis," "pneumonia," "phthisis," "granular kidney" and "diabetes mellitus." His spelling differs, as will be seen, from that generally accepted to-day. He has also seen many cases of an "inordinate discharge of urine, without the saccharine element," most commonly in fat natives.

With regard to vaccination he has little to say but he is strongly in favour of organising a system of "inoculation" under proper supervision. That is to say, he would utilise the native inoculators but would have them work under the civil surgeon.

He has much to say about the mortality in the jails, giving instances where the mortality varies between 47.8 and 261.3 per 1,000, the average being 123.6 for eight jails. On the other hand, he gives a complete list of the causes of death among the Europeans at Tinahoot for eight years. Out of a total population of 200 (130 men, 34 women, and 36 children), 19 men, 4 women and 8 children died during the eight years, giving an average mortality of under 20 per 1,000. These 31 deaths were due to the following causes—

Men apoplexy 3, dropsy 2, brain disease 1, gout 1, fever 5, cholera 1, strangulated hernia 1, paralysis 1, abscess of kidney 1, "hydrocephalus" 1, and suicide 1.

Women gastro-enteritis 1, cholera 1, dysentery 1, fever 1.

Children pertussis 1, diarrhoea 1, dentition 6.

A little further on he draws attention to the small amount of work which a civil surgeon has to do and says, "it has often seemed to me surprising, that, while the scarcity of European agency is an acknowledged drawback to the

good and efficient executive government of this country, the services of the civil surgeon should not have been applied to other duties than those merely of a strictly professional character, the latter being on most occasions such as scarcely to occupy an hour of his time daily." He suggests, therefore, that the civil surgeon should be made responsible for the internal economy of the jail and should have power to act as a coroner and to deal with vital statistics. Two of these recommendations, as we all know, have been adopted and perhaps the third may some-day come to pass. He draws attention to a practice, not, I think, unknown to-day, of "the cruelty and danger of carrying" wounded persons, however dangerous their cases, for the report of the civil surgeon. In a footnote he adds that only the previous year (1847), the "head criminal court" issued an order prohibiting the probing and cruel examination of wound by the police.

In the part devoted to "Climate," after discussing the various supposed causes of "fever"—miasmas and so on—he gives up a good deal of space to the "Pali malady," which ravaged Central India in 1838. He himself is inclined to think that this disease was undoubtedly the plague, although Ranken, to whose report he seems mainly indebted for his knowledge of the epidemic, is of a contrary opinion, in spite of the fact that buboes were common. In support of his contention he quotes a Dr. Twine, who also supposed it to be the plague. It is generally accepted now, I think, that the epidemic in question was certainly the plague.

Under "Hygiene" he gives simple directions for maintaining health in the tropics. He is greatly in favour of a proper headcovering for soldiers to protect them from the sun. With regard to alcohol he condemns the use of spirits but is in favour of beer.

The portion of the book dealing with prevailing diseases is by far the most interesting to the modern reader and shows the author to have been not only observant but in some respects ahead of his time. He is convinced that pools and ditches produce malaria, and with regard to the treatment of that affection he is rather against bleeding, but believes in purging. He has a good deal to say about "Mr. Assistant Surgeon Hare's" now famous pamphlet. He states that he, himself, gives small doses of quinine (gr 2 every four hours) between the paroxysms, but admits that he gives calomel in "arident fever," even to the point of salivation. At the same time he says that he has given as much as gr 10 of quinine every four hours in cases of remittent fever, but never during the paroxysms. He seems rather jealous of Hare and attempts to detract from the originality and value of the latter's work.

The origin of cholera is an absolute mystery to him, but rather than leave it as such he must suppose that it may be connected in some way

with "electrical discharges in the air." Following out this theory he thinks the disease begins in the liver and kidneys, as the result of "nervous shock." But when he drops theory and comes back to his clinical facts, his observant nature shows itself again. Thus he notes the post-mortem appearances in the liver, lungs, spleen and intestines, though he does not mention the kidneys. At the same time he evidently knows death from coma well, which, in a footnote—probably inspired by Bright's recent work—he thinks may be due to the effect of urea in the blood-vessels of the brain. He also recognizes the importance of getting the kidneys to start work again. With regard to treatment he advises against bleeding unless the "pulse be very full, there be a feeling of oppression at the chest and the cramps be very urgent." He believes in opium and calomel, the latter in 20 gr doses, also in astringent enemata and stimulants in the second stage. He becomes enthusiastic over the effect produced by the injection of saline fluids into the veins, and quotes a series of cases in which this was done by a Dr. MacIntosh. He notes, however, that the fluid tends to pass off by the intestines and that the improvement, therefore, may only be temporary.

In his treatment of dysentery he thinks both bleeding and the use of mercury are overdone and favours senna and salts, if there be severe tenesmus and scanty stools. He thinks well of ipecacuanha, either with or without opium, and considers that it has an "emulgent" action on the intestine. Its emetic action should be avoided but he makes no suggestion as to the best way of doing this. He discusses the relationship of liver abscess to dysentery and thinks that their occurrence together is only accidental. Under the title of "Spleen Dysentery" he describes what is now known as dysentery of malarial origin. Considering that this book was written when bleeding and salivation with mercury were still the vogue and when the microbial origin of disease was undreamt of, this Dr. Mackinnon produced a book which must have been of great value at the time it was written and although sixty years and more have elapsed since it was published, even now possess considerable interest.

REPORT ON AN OUTBREAK OF CHOLERA

By F. W. SUMNER, B.A., M.B., B.C. Camb., F.R.C.S.,

Captain, I.M.S.,

Civil Surgeon, Bynori

THE following remarks are extracted from a report on the outbreak of cholera in Bannu district sent to the A. M. O., N-W Frontier Province in May 1908 and filed in his office. They are of interest in the light of the causes of the disastrous epidemic of cholera at the Presidency Hospital, Calcutta, as worked out by Professor Haffkine.

I Cause of present outbreak

(a) The facts are —Cholera has broken out in the Bannu, Peshawar and several Punjab districts, all at about the same time

(b) A map is herewith sent, shewing that the first few cases, at any rate, were so located as regards water supply, etc., that they must be regarded as separate foci of infection

In any outbreak of cholera the factors determining such outbreak are —

- (a) Presence of cholera vibrio,
- (b) Certain necessary climatic conditions,
- (c) Some unknown personal factor

Climatic—I am of opinion that the climatic condition required is a state of unsettled, unseasonable weather, alternately hot and comparatively cold, the season when chills are rife and diarrhoeas prevalent, the latter being due in part to the consumption of unripe fruit or of fruits in excess at such a season one's mucous membranes are unstable and hence also the resistance to the invasion of micro-organisms

Bacillary—This is the difficult factor to explain a cholera epidemic cannot start without vibrios, and where do these vibrios come from? One may infer that some necessary conditions from the letting loose of cholera vibrios in many diverse places have been fulfilled

In every place there are —

- (a) Burial spots containing the corpses of individuals who have died from cholera,
- (b) Individuals who have recovered from cholera

(a) as a cause may be discarded as the vibrio is not a resistant germ and quickly dies in the putrefaction of the corpse. As regards (b) I am of opinion that such people as have recovered from an attack of cholera constitute the foci of infection for outbreaks of cholera, and that such people retain vibrios in their alimentary canal, in an attenuated culture, harmless to their hosts and passed in their faeces, but that, under the abovementioned climatic conditions, they regain somewhat their vitality and rapidly, after the passage through the intestines of one or more individuals who have diarrhoea, become virulent

In support of this theory of outbreaks being due to 'cholera carriers,' I might mention (1) the frequent result of gonorrhoeal infection of a person by one of the opposite sex who has exhibited no gonorrhoeal symptoms for a considerable period and yet from whose urethra gonococci are continually passing, harmless to the possessor, perhaps, but very likely to be harmful when they find a favourable nidus for development, (2) the case, published by parliamentary order, of 'the typhoid carrier' in the shape of a dairymaid—who had had typhoid six years before—who was the cause of a severe outbreak of typhoid fever in a home in England and which continued notwithstanding all precautions until this lady was removed from service in the dairy, and who was found to be still passing typhoid bacilli in her faeces

*A Mirror of Hospital Practice.**A CASE OF SUCCESSFUL SUTURE OF BOTH FEMORAL ARTERY AND VEIN IN HUNTER'S CANAL FOR TRAUMATIC ANEURISM*

By E. R. ROST,

MAJOR, I.M.S.,

Rangoon

HAZARATH GUL, a Mahomedan male, cooly, age 25, was admitted on the 23rd of August with a large pulsating swelling of the left thigh, with a history of having fallen on a nail a month previously. After the accident he came to hospital but stayed only one day. A week later he noticed a gradually increasing swelling of the thigh, which became painful and prevented him from continuing his cooly work.

On admission he had a large pulsating swelling occupying the inner and front portion of the middle of the left thigh. There was a small scar on the surface which the patient pointed out as being the original puncture wound.

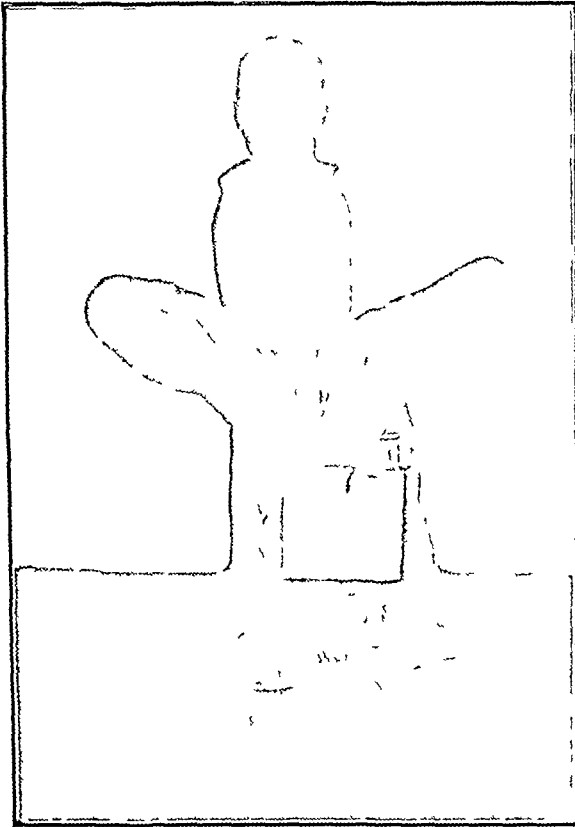
A sound like the buzzing of a bee in a paper box was heard over it and, on compressing the common femoral, the pulsation and sound ceased, and the tumour became smaller. The case was diagnosed as either a Traumatic Aneurism or Arterio-Venous Aneurism. Before commencing the operation Captain H. A. Williams, I.M.S., who kindly assisted me, suggested using the method of placing a temporary ligature on the common femoral artery and turning out the clots, ligaturing the ends of the artery and inserting deep sutures as to enclose the whole of the aneurismal cavity and bring its walls together, as has been lately carried out with success in America.

We therefore placed a temporary ligature of tape around the common femoral artery just below Poupart's ligament and freely incised the aneurismal sac and turned out the clots. There was free venous hæmorrhage, however, and this was found to come from the femoral veins. We therefore placed a tourniquet above and, having turned out the clots and sponged the large cavity dry, examination showed that we had to deal with an Arterio-Venous aneurism in Hunter's canal. The connection between the vein and artery was small, very firm and very marked. It was carefully dissected out. The spike which had caused the original injury had evidently pierced the femoral vein and gone into the femoral artery, so that, after dissecting off the vein from the artery, there were left two holes in the vein and one in the artery. These holes were circular in shape. The hole in the artery occupied about half the lumen of the vessel. I used fine celluloid thread and a small round needle and found I was able to bring the walls of the artery together. I inserted the

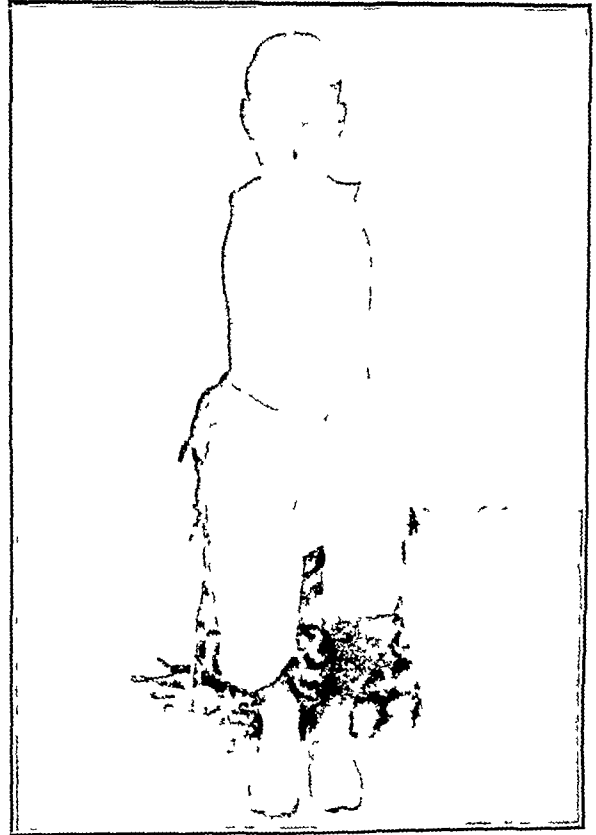
A CASE OF CONGENITAL ABSENCE OF BOTH UPPER EXTREMITIES

By LT -COLONEL J MORWOOD, M D, I M S,

Civil Surgeon, United Provinces



Bhagwan Das writing



Bhagwan Das sitting

thread through *intima* coats, first by continuous suture, uniting *intima* to *intima*. In order to get accurate apposition and eversion of the walls and put the artery on the stretch I placed first a guiding suture in the middle of the hole in the artery. A second row of sewing through the muscular and fibrous coat of the artery back to the starting point in the healthy wall of the artery completed this suture. The vein was next sewn, both holes being closed by suturing the *intima*. The tourniquet was then removed and I found that there was no leaking from the vein. I then removed the temporary tape ligature and was surprised to find no leakage from the artery. The wound was closed by sutures and Liston's long splint applied. The patient was kept under the influence of morphia. The operation was performed on the morning of the 26th August 1909 and on the same evening I found the leg and foot warm and the posterior tibial artery pulsating behind the internal malleolus. The wound healed by first intention (except a canal for drainage below), and the foot has never been cold since the operation. Dr Lund of Boston reports in the *Annals of Surgery* for March 1909, a case of injury of the femoral artery and vein, treated by this method, and another similar case has been reported by Dr Sennet of San Francisco in the *California State Journal* of February, 1908.

Some ten days after the operation when removing the sutures I could not detect pulsation in the posterior tibial and, although there has been no difference in the temperature of the two limbs, it is probable that a *thrombus* did slowly form in the artery either very much narrowing its *lumen* or completely occluding it. The operation had by this time, however, answered its purpose, that is to say, had prevented gangrene of the limb—a fatality which is so likely after occlusion of both vessels—and collateral circulation had had time to be effected.

A CASE OF CONGENITAL ABSENCE OF BOTH UPPER EXTREMITIES

By J MORWOOD, M.D.,

Lt Colonel I.M.S.,

Civil Surgeon, United Provinces

On the 6th May 1909, when visiting the Katia Branch Dispensary in the Shalijahanpur district, the Hospital Assistant in charge showed me a boy named Bhagwan Das, a Brahmin by caste, aged about nine years, with congenital absence of both upper extremities—only short stumps being present.

Family history

Bhagwan Das is the eldest of a family of three boys, the other two being quite normal.

The father, Ganesh Pershad, is a strong healthy man, aged about 28 years, with no history of syphilis or other hereditary disease. He is a resident of village Bishamoli in the Sitapur district, Oudh. The locality is a healthy one. He has lived there all his life.

The mother of the boy is a healthy woman, there is no account of any fright or accident during her pregnancy, which was quite normal.

The other relations of the boy are all healthy.

Present condition of the boy

Bhagwan Das is a sturdy well developed little fellow, very bright and intelligent.

He is able to feed himself by means of the toes of his left foot. He is also able to hold a pen between the left great toe and the next, and can write legibly.

He has got control over the stumps of his upper extremities and can move them freely at will.

I have recorded this case, as I think it is a good example of "intra-uterine amputation" of both upper extremities without interference with the general body development.

A CASE OF ACROMEGALY

By H KIRKPATRICK,

Captain, I.M.S.,

Ophthalmic Hospital, Madras

THE comparative rarity of Acromegaly may make the following case worth recording though I regret to say that it throws no light on the pathology or treatment of the disease.

Name A. Than-jammah, age 50, residence Aini.

The patient states that her illness began ten years ago, the first signs being amenorrhoea followed by failure of vision in her right eye, the left failing very soon after. These symptoms were associated with an alteration in her personal appearance which gave rise to derisive remarks on the part of her friends, all her symptoms have been steadily progressive and she occasionally complains of vague pains over her body and excessive thirst. She was married when twelve years of age and five years after had an abortion, shortly after which her husband died and she never remarried, she is not able to give any account of her parent's ailments but apparently there is nothing striking in her family history, she is sure that none of her relations ever suffered from any similar disease.

Her appearance is at present most striking, the forehead looks small but the superciliary ridges are very prominent, the malar and superior maxillary bones are considerably enlarged, the mandible is enormously increased in size and there are wide gaps between the teeth, most marked in the lower jaw, the nose, lips and tongue are all strikingly enlarged. Her hands and feet are much enlarged, the palms appear

widened and the skin on the palmar surface much thickened, the fingers though not much lengthened are distinctly thickened and clubbed, the metacarpal and interphalangeal joints are very prominent, the articular ends of the phalanges being especially thickened. The finger-nails are flattened, fissured and cracked. The same changes are seen in her feet, the skin of the sole being in addition much cracked. Both parotid glands form marked swellings over the posterior surfaces of the enlarged ramus of the lower jaw. The superficial and deep reflexes are normal and the only abnormality in her general nervous system is a doubtful area of hyperæsthesia over both scapulæ. Her muscles appear to be more developed than usual in a woman and their strength is very good, the muscles of the back are specially developed and the normal dorsal curve is absent, the flattening between the scapulæ being so great as to suggest a curve with the convexity forward, there is no change in the bones of the anterior chest wall but the lower ribs on the left side are bulged outwards in the mid-axillary line. Her arteries are highly atheromatous, the left ventricle is hypertrophied the apex beat being displaced into the 6th intercostal space just outside the nipple line, there is no cardiac bruit but the first sound is loud and booming and the second sound in the aortic area very sharp and accentuated. The respiratory system is normal, there is nothing remarkable in the digestive system with the exception of the enlargement of the tongue, she passes large quantities of urine and complains of frequency of micturition at night, examination of the urine shows specific gravity 1010, alk., no albumen and no sugar.

Leucocyte count shows polynuclear 44%, mononuclear 7.5%, lymphocytes 43%, eosinophiles 5%, transitionals 0.5%.

Examination of her eyes show the following points the bulbar conjunctivæ are slightly pigmented, arcus senilis is commencing, pupils are medium size and equal, the right reacts to light but the left is very sluggish and only reacts if a concentrated light is thrown in from the nasal side, R V finger counting at three metres, L V is reduced to hand movement but on close observation an area can be found in the nasal field in which the vision is finger counting at 2 feet, she states that her vision is much worse by artificial light, it is unfortunately impossible to obtain a perimeter tracing of any value as her intelligence does not enable her to understand what is required of her, but her field is evidently very greatly reduced though its limits cannot be defined. On ophthalmoscopic examination both nerves were found to be atrophic the change being most marked in the left, both retinal arteries showed well marked atheromatous changes in the majority of their branches.

The patient finding that her condition was not improving left hospital at her own request.

Assistant-Surgeon Balasimha Rao of the General Hospital kindly took some excellent photographs and radiographs which illustrate the characters of the deformity and the enlargement of the bones in a striking manner.

NOTES ON SURGICAL CASES IN THE DAVID SASSOON GENERAL HOSPITAL, POONA

By E C G MADDOCK,

CAPTAIN, I M S,

Assistant Civil Surgeon, Poona

B Y, Hindu female, *æt* 18 Admitted into hospital for a very painful large globular swelling on the left lower jaw, said to be of only three months' growth.

On examination externally, the swelling extended from the angle of the jaw to the symphysis menti, and was absolutely stony hard to the touch from the outside. It measured 8 inches from the lobe of the left ear to the symphysis menti, the right side only measuring 4 inches. The mouth was in a very dirty condition, the whole of the gums being soft, spongy and very foetid. The teeth were covered with tartar and sordes, but no decay. The bony swelling extended to the centre of the floor of the mouth. At one point opposite the first lower left bicuspid slight fluctuation could be felt. So on the 8th July I punctured with a strong trocar and foul pus at once exuded. I removed the trocar and plunged in a strong knife making a free opening. I washed out the cavity and plugged lightly with iodoform gauze. The teeth were all thoroughly scraped and the gums touched with solid silver nitrate and the mouth rendered as aseptic as possible. By the 12th of July the swelling had diminished 2 inches, the pus was no longer foul and was very small in quantity. By the 20th July a diminution of 2½ inches, and by the 1st August one of 3 inches had taken place. Oleate of mercury was rubbed in externally to favour absorption and potassium iodide administered internally. Up to this time no carious bone could be felt and the diminishing cavity appeared to be covered with healthy granulations.

On the 2nd of August, however, I discovered from the inside a small piece of carious bone which gradually became more apparent. I, therefore, as the cavity did not seem to be diminishing any further, determined to remove the superfluous bone, and operated on the 7th. An incision was made from the angle of the jaw to the symphysis menti just below the swelling and the skin reflected on each side. With a large trephine, I removed a piece of the external wall and found that the caries was really very extensive. Therefore with a chisel I removed the whole of the superfluous bone, leaving a ridge of bone from the angle of the jaw to the symphysis, in which the teeth were firmly

A CASE OF ACROMEGALY

By CAPT H KIRKPATRICK, L.M.S.,

Ophthalmic Hospital, Madras



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A CASE OF ACROMEGALY

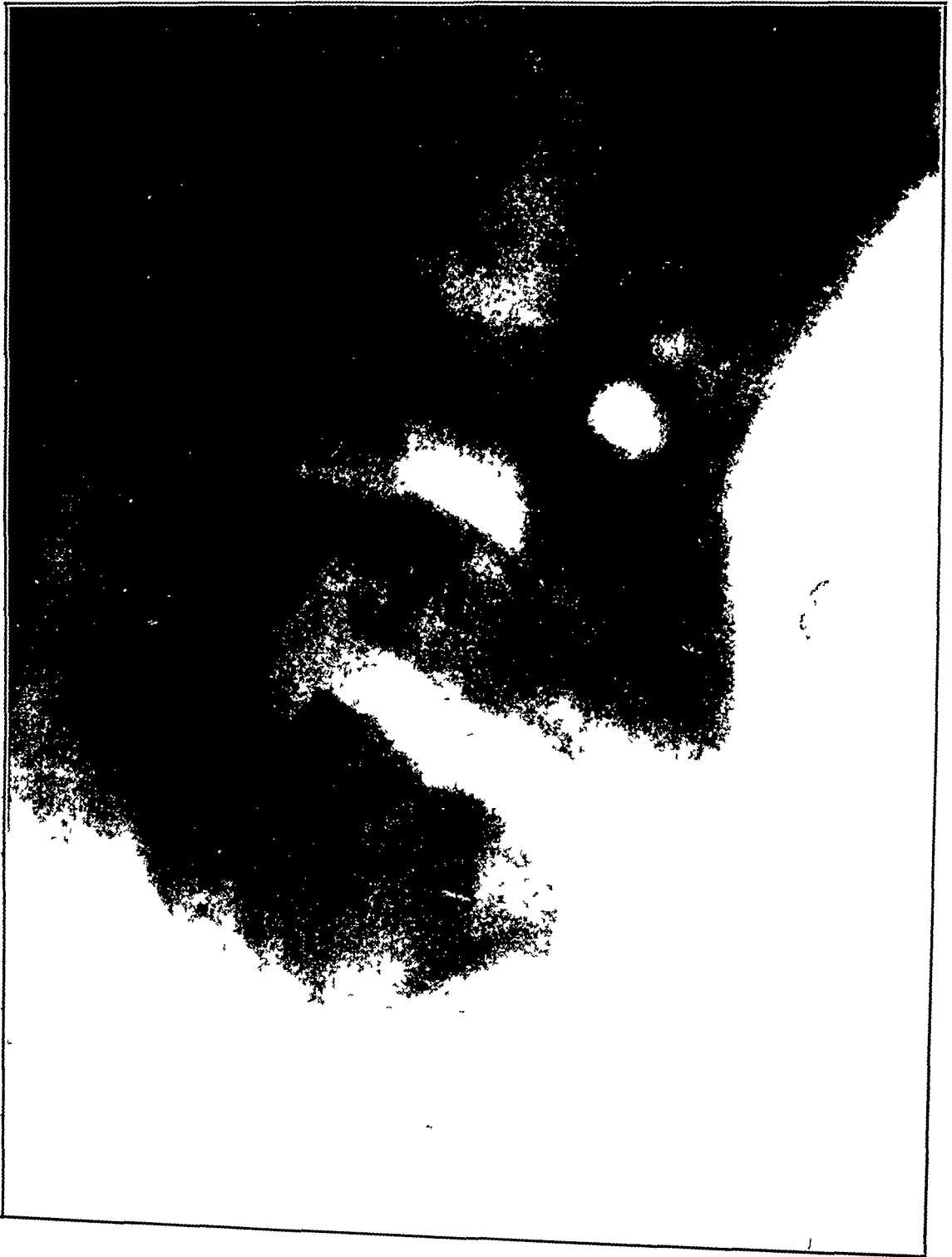
BY CAPT H KIRKPATRICK, I.M.S.,
Ophthalmic Hospital, Madras



A CASE OF ACROMEGALY

BY CAPT. H. KIRKPATRICK, I M S.,

Ophthalmic Hospital, Madras



ASE OF ACROMEGALY

By CAPT H KIRKPATRICK, I.M.S.,

Ophthalmic Hospital, Madras



embedded. I trimmed the edges of my original wound in the mouth and sewed it up so as to leave no communication with the mouth. The tips of the fangs were exposed. Practically there was no hæmorrhage and the only trouble was not to injure the floor of the mouth. I drained and sutured the wound which healed by first intention. The patient was then allowed to eat solid food and discharged perfectly well with her teeth and gums in excellent condition. The interest of this class of case appears to be its excessive rarity. I think, that the infection spread from the dirty teeth to the periosteum, caused a subperiosteal abscess which denuded the left lower maxilla of its periosteum, the latter thereupon taking on excessive growth and forming the apparently large bony tumour. The infection must have been comparatively non-violent. I am very much afraid the bony arch in which the teeth are at present firmly fixed will be absorbed or necrosed and eventually all the teeth of that side will be lost and deformity occur. At present, however, there is no sign of this and the patient's face is perfectly symmetrical.

K L, Hindu female, *æt* 54. Admitted for a very large fungating cancer of the right breast with enlargement of the glands of the axilla. On June 28th the whole breast, both pectorals and axillary glands were removed by Halstead's method, leaving a large raw area to be dealt with later.

The patient rallied excellently from the operation and convalescence was normal, except that portions of the 3rd, 4th and 5th ribs exposed by the operations necrosed and so delayed skin grafting, until the extent to which the ribs were going to necrose could be ascertained. On the 25th of July I made ready for a Thielsch graft and for removal of the dead ribs. With the greatest care I endeavoured to enucleate the ribs without opening the pleura, but I found this impossible as each rib after being cut, on the slightest movement, promptly penetrated the pleura. The lung collapsed at once so the rib was rapidly removed and the hole in the intercostal spaces brought together by catgut sutures until only a minute hole remained, where an air was entering the pleural cavity. This I blocked with a swab only letting the air go out at each expiration. Finding the lung expanded well and having no difficulty over the chloroform I removed the other two portions of ribs, in each case making a small hole into the pleura which I treated as before.

Having scraped off all the unhealthy granulations I then proceeded to skin-graft by Thielsch's method, fixing the grafts during expiration and holding them in place by swabs. The patient rallied quickly from the operation and had no difficulty in breathing, only complaining of very slight pain in the right side of the chest.

On August 1st, I dressed the case, found the majority of the grafts had taken, the lung fully

expanded and not the slightest difficulty in breathing.

She was discharged on the 30th August absolutely healed with only such cicatricial contraction as one would expect.

TWO CASES OF SIGMOIDOPEXY FOR PROLAPSE OF THE RECTUM

By Lt Col J R ROBERTS, M.B., M.S., F.R.C.S. (Eng.),

Indian Medical Service, Indore

THE first of these cases was a Hindu servant Jaganath, aged 35 years, the history of the prolapse was one of 3 years' standing, following an attack of dysentery. The man was thin and spare. When made to extrude the prolapse the condition of affairs was astonishing. The mass was the size of a foetal head, the coats of the rectum were very much thickened, and the mucous surface covered by a number of unhealthy erosions. To have decided on one of the lower operations for this condition would have meant long and continuous treatment to bring the mucous membrane back to a healthy condition. Our Indian patients of that class may be very long suffering, but are very impatient when it comes to prolonged treatment, so I decided on a sigmoidopexy.

After the usual preparation for an abdominal operation the patient was placed on the table on 12th May 1908. A large central laparotomy wound was made in order to give room for work at the back of the pelvis and left side of the bodies of the lumbar vertebræ, and to stitch the peritoneum on that region over the sigmoid flexure. It requires a great deal of careful dissection to do this and the placing of sutures at that depth in the vicinity of important vessels is no easy matter. This was abandoned and the left side of the abdominal wall was turned out, the sigmoid drawn up taut from the pelvis so as to drag on the rectum, and the mesentery was stitched by silk sutures to the back of the left rectus as low down as possible. The position selected in the mesentery was one that allowed some slackness of the sigmoid and rectum in the pelvis, and not one with any tension. The lumen of the bowel then lay below the sutures. Recovery was simple, and the prolapse was cured, the bowels acting naturally. For three months the patient complained of some constipation requiring aperients from time to time. He is now in good health according to report. The possible complication that enters one's mind is that a loop of intestine might find its way between the pubes and bladder in front and the rectum and part of the sigmoid behind, and so give rise to intestinal obstruction, however, I think, this danger is more theoretical than real, as the filling of the bladder will occupy this space.

The second case was in that of a Brahmin Saddhu, 40 years of age. The condition had

existed for seven years. The prolapse was equally large, and the mucous membrane similarly ulcerated. He was operated on the 5th June 1908. His recovery was equally good, and the prolapse was cured. The operation was done by a median incision, three sutures of Japanese silk were used to bind the mesentery to the back of the left rectus muscle. Silk and not catgut was used in order to make the adhesion a permanent one. Japanese silk is, I think, an improvement on the ordinary Chinese twist, as it is stronger, and thus allows a finer thread to be used. However sterile a suture may be, if it be thick, it is a foreign body that the tissues find greater difficulty in dealing with again. Tension in applied sutures is a mistake, they will come out, though it may be months after. The peritoneum, however, has more power of dealing with sutures than ordinary subcutaneous tissues. It is important in applying permanent sutures to ensure their asepticity by handling them with gloved hands only. The above cases differ from the seven reported by Tuttle in that the incision in his cases was made through the rectus muscle, and a muscular band of the sigmoid stitched to the wound.

A CASE OF RELAPSING FEVER IN THE CENTRAL PROVINCES

By J FOWLER,

CAPT, I M S,

Civil Surgeon, Akola

PATIENT was a child three years of age, she was brought to the Main Dispensary, Wardha, with an injury to the head and high fever, which the parents assigned to the gravity of the injury and which they said came on very soon after the child was struck.

The true history subsequently obtained was—The parents arrived in Wardha on or about the 10th October from Bejai. The child developed "fever" on the 17th October. Previous to this attack the child never suffered from "fever." Another child of the same parents had developed fever soon after arrival in Wardha on the 10th October and had died two days later.

The child was in a semi-comatose state. There was a small incised wound over the left eyebrow, skin-deep only, pupils were normal. The child did not care about being disturbed, the eyes were closed and the child lay in bed curled up much like a patient suffering with cerebral trouble. Bowels were normal and there were no abnormal physical signs in the chest. Spleen was enlarged. There was no jaundice. The urine was concentrated and very high coloured. The glands of the neck on both sides were enlarged. On examining the blood there were a large number of *spirilla* present.

One c c of the child's blood in normal salt solution was injected subcutaneously into a dog on the 19th October in the afternoon. The dog's blood did not contain anything abnormal before the injection. On the 20th the dog's temperature rose to 102 but no *spirilla* could be found in films made from its blood. The dog's temperature dropped to normal the next day and never rose again during the week, at no time did its blood contain *spirilla*.

The blood of the child did not contain *spirilla* on the 20th and subsequent days until the first relapse occurred on the 29th. Films made on the 30th October contained *spirilla* but not in such large numbers as during the first attack. The relapse was a short attack, lasting only three days. There were no subsequent relapses. During the relapse 1 c c of the child's blood was injected intramuscularly into a monkey but, owing to the large size of the animal and to the difficulty subsequently experienced in taking its temperature, I was not able to find whether the inoculation affected the temperature of the animal or not. The monkey did not appear to be ill at any time.

After careful enquiry in the town I was not able to find any person who had suffered from fever in the immediate vicinity of the patient's house. I incline to the belief that the child was infected prior to its arrival in Wardha and, if this be so, the incubation period of the disease must be seven days or more. No *pediculi* could be found on the child. I examined three bed bugs found on the child's bedding but could not find *spirilla* in them.

The *spirilla* during the first attack were in large numbers, two and sometimes three in each field, but during the relapse there was one *spirillum* in five or six fields, these appeared to be much longer than those found during the first attack. I regret I was not able to measure them accurately for want of the necessary apparatus.

No sheath was visible and no transverse staining could be seen. In several of the fields *spirilla* were seen to lie in a V-shaped manner the connecting portion at the apex of the V being a globose thickening of the ends of the *spirilla* fused together.

A leucocyte count showed an increase of the large mononuclears

Polymorphonuclears	65%
Mononuclears	30%
Lymphocytes	14%
Eosinophiles	1%

Relapsing Fever, though common in the Bombay Presidency, is a rare disease in the Central Provinces where climatic conditions are so different. At the Nagpur Jail where thousands of prisoners were examined, at no time was a case of Relapsing Fever discovered.

Indian Medical Gazette.

DECEMBER

SERVICE AT NETLEY

IN the *Indian Medical Gazette* for March last, we printed a letter, signed "Interim," on this subject, and the number for October contained a leading article, founded on several other letters received on the same topic, which, of course, is one of the greatest interest and importance to some 350 members of the I M S. One of those interested now returns to the charge in the following letter —

"Sir,—May I be permitted to remark that you can, through the medium of your valuable paper, render very material assistance to those who desire to place this matter on a more satisfactory footing. An appeal to the Director General would surely be more proper, in the first instance, than a direct memorial to the Secretary of State. Your cautions are wise, but would be unnecessary, if you would favour those interested by preparing and publishing suitable drafts of letters couched in proper form. Two forms are necessary, one for the senior men and one for the junior. Criticisms might be invited of these drafts, and, after a certain time, a date might be suggested on which all concerned should simultaneously submit their applications. All of us desire that the matter should be represented. All that is required is guidance and organisation. For this, none is better qualified than yourself.

I am, &c,
INTERESTED"

We fear that the matter is not so simple and easy as "Interested" seems to think. As we stated in our former leader, the commissions of men entering the I M S, which up to 31st March 1890 were dated from the day of joining Netley, were, after that term, dated from the day of leaving Netley, the first batch to suffer in this way being those who entered in October 1890, whose commissions are dated from 31st January 1891. This change was made, as we stated, on account of representations from members of the R A M C, whose first commissions had for many years been dated from the day of leaving Netley, that they were superseded by their I M S contemporaries at Netley, who joined on the same day as they did, but whose commissions were dated four months anterior to those of the R A M C.

The orders on the subject, which are contained in I M D Circulars of 1890, page 30, run as follows —

"Indian Army Circulars, Clause 115 of June 1890. Under the authority of the Secretary of State for

India, it is notified, with reference to paragraph 3 of G G O. No 507 of 1865, that in order to assimilate the practice of the Indian Medical Service as regards the dating of Surgeons' commissions to that of the British service, officers hereafter entering the Indian Medical Service will reckon service for pension, as well as for promotion, continuously from the date of passing out of the medical school at Netley, the time spent there being no longer allowed to count as service for pension or promotion."

Now it seems to us that, if the commissions of those members of the I M S, who entered the service from 1891 to 1902, were antedated to the date of joining Netley, this grievance of the R A M C against the I M S would at once be resuscitated, in an aggravated form. There therefore seems to be little chance of the I M S obtaining this boon, unless it is granted to the R A M C also. It is true that cases seldom arise in which priority of first commission makes any real difference to members of either the R A M C or the I M S. But this priority of the I M S was made a grievance before, and undoubtedly would be so again, were the priority of first commission again given to the I M S.

The submission of combined memorials is not allowed by Government, and the publication of a draft memorial, to be sent in separately by numerous individuals, comes to much the same thing. The most we can, therefore, do in the matter is to make certain suggestions, as to the points which might be brought forward, though there is little advantage in so doing, for every individual affected must know exactly where the shoe pinches.

In the first place, as regards those who entered the service in 1890 and earlier years, we think that their loss is not of such importance as to give rise to any general desire to move in the matter. Their commissions are dated from the day of first joining at Netley, and from that date they count service for promotion and its consequent increase of pay. True, they have to put in from two to two and-a-half months extra at the end of their service, to make up for the period between the date of leaving Netley and that of joining in India. But fully one-half of them entered about 1st October, and the extra time they have to serve falls in the beginning of the cold weather. That is no great hardship. Those who entered about 1st April, and have to serve an extra hot weather, are in harder case. But even so, while doubtless most of them have more or less given vent to private grumbles about the matter, we do not

think that there is any general desire among the seniors to represent the matter officially

The men whose commissions are dated between January 1891 and July 1902 have certainly more ground for complaint. Their commissions being dated from the day they left Netley, they lose four months for promotion, with its consequent increase of pay at each step up to Lieutenant-Colonel, and also lose these four months for pension. This is their grievance. This is what they have to represent officially, if they think that the chance of success is worth the effort. It can be put in a few lines. Any representation should, we think, confine itself to the bare facts, put in the fewest possible words.

Of the whole number of officers, some 350 in all, who entered from January 1891 to July 1902, there is one batch the last, who are affected more seriously than the others. With effect from 26th July 1902, 32 officers were gazetted to the I M S, of whom 27 are still serving. The next batch below them were the first whose commissions are dated from the day of joining, from 1st September 1902. The men who entered in July are, therefore, little more than one month senior to the next batch, instead of the usual difference of six months. Therefore, every man of the September batch who gets special accelerated promotion, will go over the heads of all those of the July batch who fail to get it. Probably some twenty men of the July batch will thus be superseded by five or six men who entered in September, who would have been, but for the change in date of first commissions, six months, instead of one month, their juniors.

THE THEORY OF COLOUR VISION

EDRIDGE-GREEN read a paper on this subject before the section of Ophthalmology, and again, by request, before the section of Physiology, at the Sixteenth International Medical Congress at Budapest. A full account is given in the *Lancet*, October 2nd, 1909.

Edridge Green assumes that the cones of the retina are insensitive to light, but sensitive to chemical changes in the visual purple. Light falling on the retina liberates the visual purple from the rods, and it is diffused into the fovea and other parts of the rod and cone layer of the retina. The decomposition of visual purple by light chemically stimulates the ends of the cones

(probably through the electricity that is produced) and a visual impulse is set up, which is conveyed through the optic nerve fibres to the brain. He assumes that the visual impulses caused by the different rays of light differ in character just as the rays of light differ in wavelength. Then in the impulse itself we have the physiological basis of the sensations of colour. It is also assumed that the quality of the impulse is perceived by a special perceptive centre in the brain within the power of perceiving differences possessed by that centre or portions of that centre.

According to this view, the rods are not concerned with transmitting visual impulses, but are concerned only with the visual purple and its diffusion. The idea that the visual purple is not essential to vision because it is not present in the cones Edridge-Green states to be fallacious as visual purple is found between the cones. He holds that the rods produce a substance which affects other cells rather than themselves. The rods would, therefore, act as the nervous element between the stimulus—light—and the generation of visual impulses in the cones through the action of the chemical changes in the visual purple carried out through the rods.

It is easy to trace the connections of the cones with the inner layers of the retina, but the rod fibres appear to end in nucleated enlargements.

The cones of the fovea are surrounded by a ring of rods and the outer segment of the cones is situated in a space filled with fluid. It is thus easy to understand how adaptation to darkness is brought about by a steadily increasing percentage of visual purple being added to this fluid, rendering it more and more sensitive to light. If the cones, as is assumed, are not sensitive to light, a ray of light falling on the fovea alone and not upon the adjacent portion of the retina containing rods should produce no sensation of light, provided that there is already no visual purple in the fovea. This affords a simple explanation of the well-known phenomenon that a star in a dark portion of the sky disappears when steadily looked at, whilst other stars seen by indirect vision remain conspicuously visible. Evidence of a direct experimental nature is brought forward to show the presence of visual purple in the fovea—between but not in the cones.

This very simple and easily grasped theory of colour vision appears to satisfy all the facts hitherto observed and requiring explanation. The

idea of the evolution of colour sense is particularly interesting. Assuming that the visual centre itself was first developed, and that at one time in past ages all objects appeared without colour, as in a photograph, when the colour-perceiving centre was first developed, the rays differing most in wave-length would be the first to be distinguished, and so the spectrum appeared all grey or neutral, but with a tinge of red at one end and a tinge of violet at the other. As more and more cells were added to the centre, it was not necessary that the rays should differ so much in refrangibility before a difference was seen, and so red and violet gradually invaded the grey or neutral band, until at a certain point they met in the centre of the spectrum. Such cases are called "dichromics."

The next stage of evolution of the colour sense is when the colour-perceiving centre is sufficiently developed to distinguish three main colours in the spectrum. The third colour—green—appears in the centre of the spectrum—that is, at the third point of the greatest difference of refrangibility of the rays. About 15 per cent of people are "trichromics." They see three main colours—red, green and violet, and do not see yellow and blue as distinct colours, and are therefore in continual difficulty over them. These individuals will usually pass a matching test with ease yet they are dangerously colour-blind, when tested with coloured lights, they find great difficulty with yellow and blue—yellow is continually called red or green.

There are several other degrees of colour-perception, though Edridge-Green classes all above trichromic with the normal sighted for practical purposes, as they are not dangerously colour-blind and can always distinguish signal lights correctly.

In the next stage of evolution four colours are seen, the fourth appearing at the fourth point of greatest difference of refrangibility—at the orange-yellow. They may be called "tetra-chromic"—they see red, yellow, green and violet, but do not see blue as a separate colour and are continually classing blues in the greens. In the next stage of evolution there appeared those who see five colours in the spectrum—red, yellow, green, blue and violet, blue being now recognised as a definite colour. These individuals cannot see orange as a definite colour. In the next stage orange is recognised as a definite colour, and the last stage we have reached recognises indigo between blue and violet.

Current Topics.

OUR CONTEMPORARIES

THE July number of the *Practitioner* this year is devoted to the discussion of gout. First Duckworth treats of the dietary of gouty patients, and insists on the futility of a purely vegetable diet, and the needlessness of blaming all wines as poison. Briefly, he appears to favour a general nutritious diet, "plain cooking" being recommended. When one thinks of the monstrous concoctions which English cooks compound when they go in for what they fondly believe to be high-class cookery, one is inclined to side with this view of what is good for—English patients. Goodhart has an article on the treatment of gout, in which, incidentally, he asserts his belief that the uric acid sand that is passed in such quantities by patients who take a course of the waters at Contrexéville is really due to the waters. The article reads well, but we should like to know exactly what the following passage means—"It would appear that uric acid must form rapidly, and at the bidding of an intermittent energy, the ebb and flow of which the patient can recognize as such, low down in the springs of his being, for he can oft-times forecast the result with certainty many hours before the actual appearance of any crystalline deposit, and, if so, it is much more reasonable to suppose that the patient goes to the bath ill from a concatenation of unhealthy products, not uric acid, but some thing or many things that will or may go to form that ash in the efforts of nature to purify its own machinery." We believe that the meaning is "I don't know what causes gout, but I believe that it is not due to uric acid. I hold that the bath water on being drunk causes the appearance of uric acid in the urine." If so, we would ask why the writer should clothe his laudable desire to confess his ignorance in such phrases, which can have really no meaning, if uric acid be not ash, and the 'machinery' of nature be not foul in the sense in which an engineer would use the word. We gather that the treatment of uric acid is a very simple one—30 grains of potassium bicarb in a tumblerful of water at bedtime plus change of air and scene and a 'tonic' course.

Luff's article on the treatment of gout is equally unsatisfactory. Instead of vaguely referring, as does Goodhart, to "that condition of the colon—catarrh or what not—that we are in the habit of calling mucous colitis" as a symptom, Luff clearly asserts his belief that this is the *fons et origo mali*, leading to "an alteration in the toxins produced by one of the intestinal bacilli." So far so good, but why not have made an attempt either to identify the special microbe responsible for the changed excretion, or to explain wherein the alteration

lay, instead of writing at large on "hepatic torpor," which, if it mean anything, must be a sign of the old pathology persisting in spite of some knowledge of the data of microbiology having crept in

West writes on gouty kidney and head-poisoning, and concludes that while granular kidney is not caused by gout nor by lead poisoning, although both cause chronic changes in the kidney's interstitial tissue, yet if the patient has granular kidney, he is more liable to suffer from gout or lead poisoning, as the case may be, than a man whose kidneys are sound—which is probably what one would expect! Then come articles on the cardio-vascular manifestations of gout by Kidd, and on gout in relation to disease of the nervous system by Taylor, who admits that the relation is "indirect" After these we have a note on cutaneous manifestations of gout and then treatment by Galloway, which repays perusal more because it gives sound advice as to the treatment of eczema than because it makes clear the relations, if any, that exist between any dermatitis and "gout"

Bannatyne's article on the Balneological treatment of gout, and Gore's and Rendall's articles on the same subject are, as might be guessed, paeans of praise of the waters as antipodagmic remedies Bannatyne admits that "to explain scientifically how mineral waters produce such great and good effects is difficult" After writing learnedly about uric acid being present in the blood as a quadrimate, which, if it be converted into insoluble biurate by interference with elimination of the quadrimate, becomes deposited in the tissues, he impresses on the reader the necessity for limiting the formation of urates, but gives no hint as to the *why* of the use of mineral waters for this purpose. Gore holds that "in gout there is a storing up of toxic bodies in the fibrous tissues, what might be called the backwater of the circulation," but does not enlighten us as to the special "toxic bodies'" identity However, he does show that bacterial growth in the intestine is decreased by the use of sulphur waters, which is something Rendall's article gives one a good idea of the method of treatment of frequenters of Spas Watson writes on Changes in the Joints in Gout, and gives plates illustrating the deposits of sodium biurate in the tissues, etc He does not touch on the treatment of the conditions which he describes

Lastly, Hall writes on the Metabolism of Nucleins in Gout He says that "we are gradually feeling our way to a stage when the view that estimations of urinary uric acid permit any exact measurements of the extent of endogenous nuclein metabolism may have to be abandoned," and admits that "the gouty condition does not admit of precise classification," which is what one has gathered from many hours' reading of the text-books The light

shed by him on the pathology of gout is conveyed by the following passage—"Gouty individuals possess some inborn defect or alteration of nuclein metabolism, which lowers the resistance of the tissues in certain directions, and so permit a response to irritants which are sensibly appreciated by those whose metabolism does not exhibit *this peculiarity*" (the italics are ours) No attempt is made to indicate what the inborn defect is, nor in what directions the tissue resistance is lowered MacCracken writes some Clinical Notes on Gouty Throat, from which it appears that in 26 cases of this affection he examined the urine of 18 and found uric acid to be present 'in the urine of most of these' Of 18 cases in which uric acid was found, in 16 the disappearance of the uric acid was practically contemporaneous with cure of the throat trouble" He believes that there is a "deposit in the mucosa or underlying tissues of the throat of uric acid which has either been introduced in excess, or suboxidized, or incompletely excreted," but he brings forward not a tittle of proof of this

It is with pleasure we refer to the July number of the *Quarterly Journal of Medicine* Laslett writes on Syncopal Attacks, associated with Prolonged Arrest of the whole heart, which he observed in a childless married woman, aged 40, who was anæmic and had a systolic murmur, probably hæmic, at the apex and in the pulmonary area—with no enlargement of the heart For three or four weeks her pulse would remain regular at about 70 beats per minute Then it would begin to intermit, till intermissions for four or five seconds occurred When this stage had been reached and had lasted for three or four days, the intermissions would become less and less frequent till at last the pulse became normal again The whole period of irregularity would last about a week At one observation it was found that the whole heart made a pause of $\frac{1}{3}$ seconds! Swallowing movements, two or three made in quick succession, temporarily removed the irregularity, which returned as soon as they ceased, excitement or exertion also had this action The condition was held to be one of vagal-inhibition acting on the sinus rhythm

Lewis had a case of Mitral Stenosis, and discussed the cause of the irregular action of the heart in this condition He lays stress on the proofs afforded by Weiss and Joachim's graphic records of the facts that the presystolic murmur is due, in part at least, to contraction of the left auricle, and that the disappearance of this murmur is caused by deficient auricular contraction The phasic variations in the length of the pulse in mitral stenosis are, he believes, due to vagal-inhibition for they are temporary and periodic, and they much resemble the curves which we get from animals whose

vagus has been weakly stimulated, and the variations which forced respiration causes in the case of human beings

Macalister discusses a case of Paroxysmal Hæmoglobinuria. His experiments, based on those of Eason, show clearly that in this case there was present in the serum a hæmolytic amboceptor which was both *auto* and *isolytic*—caused dissolution of the patient's own erythrocytes and of those of other persons. He considers that this goes far to render the hypothesis of increased vulnerability of the patient's erythrocytes unnecessary. He failed to induce a paroxysm by giving high doses of quinine for some days. The condition is, he believes, due to intravascular hæmolysis, which is favoured by the application of external cold followed by warming. The paroxysm is also favoured by nervous excitability. Between Raynaud's disease and paroxysmal hæmoglobinuria no hard-and-fast line can be drawn the vasomotor disturbances that are characteristic of the latter disease being frequently present in the former, and 60 per cent of cases of Raynaud's disease being sufferers from hæmoglobinuria. During the paroxysm the erythrocytes undergo great degeneration and destruction, there is increased phagocytosis, consequent on the stimulation of the leucocytes by the presence of the amboceptor. Probably the leucocytes produce the complement necessary for the activation of the amboceptor. After a paroxysm rapid regeneration of the blood takes place, and Macalister is inclined to think that "the products of cell destruction are largely retained to form the raw material for a new generation of erythrocytes." The cause of the presence of the hæmolytin is unknown. The disease is not invariably syphilitic, but "in syphilitic patients generally, there is frequently a lack of stability in the blood which has a very suggestive resemblance to the conditions present in hæmoglobinuria. There are no gross changes in the abdominal viscera. He appears to be of opinion that it will be long before the link between vaso-motor stimulus and auto-hæmolysis will be discovered. "Until new methods or more perfected methods make such investigation possible, there will be no end to vague speculations, bricks without straw," he says.

White and Jan Mahomed have found that the urine of cases of pulmonary tuberculosis is more highly acid and takes a much longer time to decompose than the urine of those who have no tubercular disease of the lungs. They thus confirm the results obtained by White in 1892.

Hall details clinical observations on the effects of certain drugs in Diabetes Mellitus. The results obtained from the exhibition of codeina were on the whole disappointing, but no craving for the drugs was induced. Opium gave better results. Secretin, prepared according to the directions given by Moore, Edie and Abiam, was found to be unpleasant, and gave no good

results. Aspirin was of no value. Carefully compiled tables accompany the article. Gaird has written a learned paper on the excretion in the urine of sugars other than glucose. He recommends Rubner's test which is performed thus—To the urine some solid neutral acetate of lead is added and the urine is boiled for some time, and then ammonia is added to the boiling liquid. If lactose be present, a rose-red colour appears, glucose gives a coffee-brown colour, maltose gives a pale-yellow, while lævulose gives no colour-reaction.

For the satisfactory demonstration of lævulose in the urine we must show that there is present a lævo-rotatory substance that yields the reaction test of sugar, is fermented by yeast, gives Selivanoff's reaction (a red colour when the urine is heated for a short time with an equal volume of strong HCl and a few particles of resorcin), and yields with phenyl-hydrazine ordinary glucosazone, and with methyl-phenyl-hydrazine an osazone that melts at 153°C after purification.

Pentose reduces Fehling's solution, the reaction being delayed, and taking place suddenly after the mixture of urine and reagent has been boiling for some time or whilst it is cooling. With yeast no fermentation occurs, and the urine is optically inactive. With phenyl-hydrazine an osazone is obtained that is soluble in hot water and on recrystallisation melts at about 160°C. Further, we have certain colour-reactions. If to 0.5 cc of urine we add 5 or 6 cc of fuming hydrochloric acid that contains a small quantity of phloroglucin, and place the test-tube in a beaker of boiling water, we shall, if pentose be present, have a deep red colour developed, and the mixture when spectroscoped will show an absorption band between D and E. Bial's modification of the Orcin test is well suited for clinical work. The reagent is a solution of 1 gm of orcin dissolved in 500 cc of HCl of 1.151 sp gr, to which has been added 25 drops of a 10% solution of ferric chloride. Of this reagent 5 cc are heated to boiling in a test-tube, which is then removed from the flame, and has 5 drops of urine added to its contents. If pentose be present, we have at the junction of the liquids a green ring rapidly developed, and this colour pervades the whole contents of the test-tube when these are shaken, the liquid then showing an absorption band between C and D. So far as is known, pentosuria, like alkaptonuria and cystinuria, is less a disease than a congenital anomaly. It is specially frequently observed in Jews, and is found in both sexes, being a "family" failing.

INTRACUTANEOUS INJECTION OF DIPHTHERIA TOXIN

BINGEL reports the case of a physician who injected into the skin—after the manner of Schleich's infiltration—into each of two spot

near one another on his left forearm, 0.1 cc of a sterile high potency diphtheria toxin. The result was a large slough which formed with high fever that lasted 5 days. The ulcer formed by the sloughing of the tissues was not completely healed until 7th February, although the injections had been made on 23rd October. The patient's blood-serum was standardized by Neisser and Altmann and found to contain the enormous amount of 6 immune units per cc. Eighteen months previously the patient had had diphtheria and for this had received an injection of 2,000 units of anti-diphtheritic toxin. During the progress of the illness that resulted from his auto-injection he received 4,000 units more, but if it were possible that this total of 6,000 units were still present in his blood when his serum was standardized, he could on this account at most have only 17 immune units per cc. It follows that owing to his self-vaccination he had developed a very high immunity against diphtheria toxin. As Bingel pathetically puts it, immunization against diphtheria can alas! scarcely be practised in this manner.—*Muenchener Med Woch*, No 26 of 1909

PLACENTA PRÆVIA

Mason and Williams, on a consideration of 155 cases of placenta prævia that have been delivered at Boston lying-in hospital during the past 35 years, come to the conclusion, that—

1 "Improvement in the results of the treatment of placenta prævia is to be expected not so much from any particular method of delivery as from early delivery

2 "The advantages of early delivery are as great for the child as for the mother

3 "Every patient should be instructed, and enabled, to notify a competent obstetrician at once of any uterine hæmorrhage during pregnancy

4 "Any hæmorrhage during the second half of pregnancy demands an immediate investigation of the contents of the lower uterine segment

5 "A routine vaginal examination should be made on every patient at the end of the seventh month

6 "In multiparæ rapid dilation, followed by version and extraction, offers a safe and satisfactory method for both mother and child

7 "In primiparæ at the beginning of hæmorrhage, while still in good condition, Cæsarean section should be the operation of choice"—*Boston Med and Surg. Journ*, 1909

THE LIFE OF THE APPENDIX VERMIFORMIS.

FROM statistics which he has compiled of 2,092 cases observed ante- or post-mortem,

Lietz finds that the appendix may be found lying—

in 37 per cent of cases	towards the pelvis
in 12 " " "	medially from the cæcum
in 10 " " "	laterally from the cæcum
in 21 " " "	behind the cæcum
in 4 " " "	upwards from the cæcum
in 2 " " "	outwards and forwards
in 0.3 " " "	invaginated in the cæcum
in 0.7 " " "	on the right of the cæcum
in 13 " " "	in a hernia generally right inguinal or femoral sometimes left inguinal, rarely umbilical, obturator, ventral or ischio rectal

Archiv f klinische Chirurgie, 1909

THE CONQUEST OF THE TROPICS FOR THE WHITE RACE

ON this subject Colonel Gorgas delivered his Presidential address at the meeting of the American Medical Association, at Atlantic City, on 9th June. While all the world acknowledges that in Panama, thanks to the labours of Colonel Gorgas and the unlimited funds placed at his disposal by the authorities, malaria and yellow fever have become things of the past, we do not agree with Colonel Gorgas when he says—"It is neither difficult nor expensive for the white man going to the tropics to protect himself from malaria. It is only necessary that he should screen his house well, drain and clear off the brush within one hundred yards of his residence. These measures are much less expensive than those he must take in the temperate zones to protect himself from cold." Not that we consider that malaria prophylaxis of this description is more or even so expensive as protection from cold, but that we think that Colonel Gorgas might have mentioned the difficulty that arises from the presence of a number of indigenous servants, some of whom are bound to be hosts of the parasite of malaria. To overcome this difficulty we hold that nothing less than systematic quinzimation of these possible parasite carriers will certainly protect their master.—*Journ Amer Med Assoc*, 1909, 52, p 1967

OUR contemporary, *Medical Missions in India*, of October, contains many most interesting items. Dr Wanless publishes an exhaustive account of the accidents and complications of cataract extraction, which will well repay careful perusal. In reply to the request for opinions regarding the method of extraction of cataract without rupturing the capsule, a series of answers are published.

Dr Wanless states that his attitude towards Smith's operation is friendly and that he is doing the operation in most of his cases. He believes, however, that for the man who only does a few cataracts in the year, it would be

better for him to adhere to the old capsulotomy plus the use of intraocular irrigation. Dr. Campbell writes that in a total of 59 cases of removal in capsule there was vitreous escape in 19 (only considerable in 4). He attempted to remove the lens in the capsule in many other cases, but desisted when it did not present after considerable pressure had been applied. He considers the operation risky and one that requires a good assistant. Dr. MacPhail's experience with Smith's operation has not been very favorable. With 104 extractions in 29 there was escape of vitreous, in 4 rupture of the capsule, in 3 prolapse of the iris, in one suppuration and in one hemorrhage as well. He has given up the operation except in specially selected cases—those with a tough, opaque capsule, and cases of unripe cataract where operation is essential. His main objection to the operation is that so much depends on the assistant, but in some cases its advantages are so obvious and so marked that it is advisable for operators who have many cases to deal with to make themselves familiar with the operation.

Dr. Thompson gives a table showing a comparison of vitreous escapes in 245 cataract extractions:

In 158 extractions with capsulotomy he had 14 escapes of vitreous—8 small, 4 medium and 2 large.

In 87 extractions in the capsule he had 22 escapes of vitreous—13 small, 7 medium and 2 large.

Practically all the cases of "small" loss of vitreous obtained very good sight, and most of the cases of "medium" escapes very fair sight.

Dr. Thompson's experience is that subsequent complications, such as iritis, are very much more rare in "in capsule" cases.

He concludes that as the results as regards sight are so highly satisfactory, he intends to persevere with expression in the capsule.

Dr. Lankester speaks highly of the operation when "one has got one's hand in." He believes it is not so much a matter of technique or manipulative skill as of a correct estimation of pressure and resistances, the balancing of one's own hand pressure against the varying resistances of the lens-retaining structures and the hyaloid membrane of the vitreous.

When from continuous practice this estimation becomes almost unconscious and the resulting hand pressure almost automatic, extraction without opening the capsule looks delightfully easy, and is comparatively safe. For the surgeon, however, who is doing only two or three cataracts a week, the very care which he has to take to adjust his force in expressing the lens seems to increase the risk of rupture of vitreous. He concludes—

"So I would ask those who are doing cataracts in very large numbers and for whom the new operation is probably wholly justified by its results, not to be too urgent in pressing it upon others whose opportunities

both for acquiring and for retaining the needed practice are less abundant."

INTRAVENOUS INJECTIONS OF QUININE IN MALARIA

THE routine use of quinine salts, injected intravenously, in severe malarial infection has been for years recommended by Baccelli. The following case, related by him at the recent International Medical Congress at Buda-Pesth, may serve to fix the advantages of this method of treatment in the minds of our readers—
"When my illustrious colleague, Koch, came to Rome to study malaria, one day when passing through the wards he noticed a patient, who was at the point of death and had received absolution from the priests. Koch asked that this man's corpse should be kept for him to study, but the Chief Assistant of my clinique, Professor Rossoni, after examining the patient, gave him an intravenous injection of quinine, one gramme of the salt, according to the method recommended by me. Next day Koch to his great surprise found the patient sitting up in bed and taking nourishment. He was so astonished that he would not believe his eyes, but carefully questioned the patients who were lying in the neighbouring beds, as to whether the man who was eating was really he whom he had only the day before seen at death's door. They asserted that it was he, and from that day Koch in the most solemn manner affirmed the miraculous results of endovenous therapy." As our readers are aware, Baccelli's solution is made thus: R Quinine hydrochlor 10, sodii chloridi 0.75, aq. distill 100 duly warmed and diluted with 0.85% saline solution.

PROGNOSIS IN SYPHILIS

RECENTLY M. v. Zeissl, of Vienna, whose competence in the matter entitles his opinion to be received with much consideration, has stated that he has found that there was less chance of later invasion of the viscera and nervous system the more intense the cutaneous manifestations were in a case of syphilis. Like most other observers, he has found that cases in which the site of injection is extra-genital show more severe symptoms than those in which the primary lesion is on the genitals.

We have heard a well-known bacteriologist argue that it may well be the case that the cutaneous eruptions and plaques muquenses are the result of an attempt on the part of the *treponema pallidum* to find an exit from the body of its human host, in order to undergo further development—on the analogy of the life-history of many of the *trypanosomata*. In what other host this further development might take place was the nub!

BACILLARY DYSENTERY IN THE PHILIPPINES

DR. WHITMORE has published a paper on this subject.

Archiv f. Gyn
Physician at Leopold's Klin

fact that in June of this year bacillary dysentery was more common than usual, and among the badly affected places were Batangas and Bauan, in Batangas Province. Dr Whitmore went to investigate the dysentery there.

"In 1899 and 1900 dysentery prevailed extensively in the Philippines, especially among the United States soldiers, and it was mainly on cases in the army that Flexner, Strong, and Musgrave did their work, and drew special attention to the fact that acute bacillary dysentery was different from amoebic dysentery, was very prevalent in the islands, and was a very fatal disease.

"Since that time we have heard a great deal about amoebic dysentery and many of us seem to have lapsed into a feeling that if a case of dysentery was not amoebic it was not very serious, and I desire again to call attention to the fact that bacillary dysentery is a common disease here and that it is a fatal one."

Dr Whitmore obtained stools from the cases in Batangas, Bauan and other places, and from all these places he was able to isolate an organism that corresponded in every way with the *Bacillus Dysenteriae* of Shiga and which was agglutinated by the blood-serum of the patient. He examined all stools for amoeba and found them present in only one case.

As to diagnosis, Dr Whitmore thought that the ordinary examination of the stool was of assistance only in a negative way, as finding the amoeba usually satisfies and we look no further.

"Examination of the stool for *Bacillus Dysenteriae* is possible only for one with some laboratory training and facilities. The bacillus is rarely found except in the bloody mucus stool and is very rarely isolated from a stool that is over 48 hours old, so that bacteriological examination of the stool is not yet suitable as a routine means of diagnosis."

As a method of treatment, by all those who have given it a fair trial, serum-therapy is considered important. The mortality was reduced markedly—from 24% to 13% to 5%, the highest.

With reference to the serum-reaction there is a great diversity of opinion. Dr Whitmore does not consider that it is to be relied on for diagnostic purposes, that it does not appear till the second week and sometimes never.—*Pull of the Manila Medical Society*

PENETRATING INJURY OF THE BRAIN RECOVERY

Dr W. A. GILLIS of Richmond, America, describes a most interesting and absolutely unique case. An engraver, aged 30, shot himself with a 32-calibre revolver, the ball entering the right side of the head two inches behind the upper temporal ridge and one inch above the zygoma, traversing the frontal region, passing entirely through the bone of the opposite side

(but not through the skin) at a point midway between the frontal eminence and the superciliary ridge, an inch to the outer side, a skin incision being necessary to remove it. There was a certain amount of brain substance lost. The treatment employed was tentative and conservative, drainage, ice-cap, purge and morphia.

The patient made a good recovery after a period of marked symptoms of cerebritis.

WE are in receipt of a copy of Messrs J & A Churchill's latest catalogue. It has been specially arranged so as to be easily consulted for reference. The books have been classified under thirty-four heads and many specimen illustrations are given. A glance at the index to authors shows the important and influential nature of the literary work in Medicine and Science that is to be found in the catalogue.

LIEUTENANT-COLONEL MAYNARD, I M S, Professor of Ophthalmic Surgery, Medical College, Calcutta, has joined the Editorial Staff of the *American Quarterly Review*, "Ophthalmology," representing India and Australasia.

LITERARY NOTES

MESSRS W B SAUNDERS COMPANY beg to announce that they have in the press, and will publish shortly, an important new work on Malaria by Wm H Deaderick, M.D.

This will be a practical work in which special emphasis is laid on diagnosis and treatment. The third cycle of the malarial parasite—the pathogenetic cycle—is described for the first time in any language. A full and clear account of hæmoglobinuric fever is given. The etiology, especially the mosquito transmission of the disease, is written in the light of the very latest knowledge. Prophylactic measures have been given full consideration, omitting nothing that has been proved of value. The book will be fully illustrated by a number of original pictures which add considerably to the practical value of the text.

MESSRS BAILLIÈRE, TINDALL & COX announce that they have ready for immediate publication a new edition of Jellett's "Manual of Midwifery." This has been for the most part re-written and many new and original illustrations have been added. "Jellett's Manual" is one of the most successful volumes in the well-known "University Series."

Current Literature

OBSTETRIC

Menstruation and Epilepsy.—Maguin (*La Gynecologie*, 1905, February) reports a case in which the onset of the catamenia was accompanied by epileptic convulsions. Prior to menstruation the patient

had been subject to attacks of convulsive coughing which were possibly crises of latent epilepsy, but no fit proper ever occurred till the appearance of the first menstrual discharge. During her pregnancy the fits, like the catamenia, ceased altogether, nor did she ever have a fit except at a menstrual period.

W Russell (*Glasgow Med Jour*, 1904, February) reports a case in which epileptic convulsions attacked a woman, aged 24, and recurred at each menstrual period. An ovarian tumour developed and was removed, the other ovary, thrice the normal size, was also removed, and for six months (at least) after the operation the patient had no epileptic attack.

The relation of the Pelvic Floor to Pelvic Displacements and Pain in the Female.

Ernest W Hey Groves (*The Bristol Medical Chirurgical Journal*) June 1906.—In this interesting and suggestive paper the author comes to the following conclusions:—

- 1 That the pelvic viscera are supported chiefly by the underlying pelvic floor.
- 2 That the pelvic floor consists of a muscular diaphragm composed in the main part of the levatores ani and their investing fascia which actually attaches the viscera to the floor.
- 3 That the pelvic floor is adequately supported by its attachments to the circumference of the pelvis, but is weak in the mid line where it is perforated by the rectum, vagina, and urethra.
- 4 That the efficiency of the pelvic floor depends upon the union of its two halves in the mid line.
- 5 That displacements of the uterus, bladder, and vagina, apart from diseased conditions, depend upon a rupture, stretching or thinning of this median raphe.
- 6 That the adequate and rational treatment of these conditions consists in a repair of this muscular raphe either in the perineum or by forming a new second line of muscular union between the vagina and bladder.
- 7 That the use of a pessary constitutes a reasonable second best treatment, but that this will only be possible when the gap between the edges of the levatores ani is narrower than the diameter of the pessary.
- 8 That when the pelvic viscera lose their adequate support by the pelvic floor, they hang upon their peritoneal "ligaments," and this causes pain by dragging upon the ovaries, tubes, and pelvic nerves.

Operations during Pregnancy.—v Fellner, Vienna (*Wiener m Wchns*, 1905, No 9), declares that normally conducted operations which do not interfere with the integrity of the ovum itself, never really cause, even if exceptionally they may incidentally be a factor in, the interruption of pregnancy. Every operation may and should be undertaken irrespective of pregnancy, and this is especially the case when the object is the removal of a focus of suppuration, for which the intervention should be radical and as early as possible. The difficult question whether in certain cases, the pregnancy should be artificially terminated before the operation, must be decided in every case on its merits, if the life of the mother can with any certainty be saved by the operation.

Bilateral Tubal Pregnancy.—Jayle and Naudroit (*Zentralb f Gyn*, 1905, No 9), operated, with a happy result, on a multipara, aged 34, for bilateral tubal pregnancy. Both fetuses were present, that on the right side dating from January to March, 1903, still lay on the pavilion of the tube. The more recent, from July to October of the same year, had ruptured. The authors have collected 29 published cases of the kind, but in 10 only could both fetuses be demonstrated. In 21 the interval between the two pregnancies could be still decided. In 10 it was less than one year, in 4 between one and two, and in 7 between two and four years. Hitherto no cases of simultaneous conception in both tubes has been recorded, nor one of simultaneous vitality of two extrauterine fetuses.

Statistics of Abortion.—Doleris (*C R Soc Obst, Gyn, Paed*, 1905, Feb), has collected statistics on this important subject from various Maternity hos-

pitals of Paris, which, altogether incomplete, show the excessive increase in the proportion of abortions to labours at term. During the seven years from 1898 to 1904 inclusive, this proportion was, in six of these hospitals, risen from about 5.6 to about 16 per cent, and he estimates that more than one half of these cases are provoked by criminal operations of some kind or other. The proportion of premature labours has also increased considerably. Doleris attributes this state of things to the tone of modern novels, and to the unhampered propagation of so called neo-malthusian ideas. He cites a number of books or pamphlets, published and sold broadcast, describing various methods for preventing conception, as well as different instruments for inducing abortion, and also the manner of using them, not unfrequently demonstrated at public conferences. He not only points out the gravity of the question, from the moral and social point of view, but calls the attention of philosophers and sociologists to it as the most potent factor it work in reducing the population of France, the premature suppression of gestation diminishing the number of births, and the means taken to interrupt gestation causing an excessive mortality among those unhappy mothers who submit themselves to such measures.

Eclampsia and Decapsulation of the Kidney.—Cavaillon and Trillat (*Gaz des Hopitaur*, 1903, No 116, *Zentralb f Gyn*, 1905, No 6) report.—In an eclamptic primipara, in whom the fits continued after the uterus had been emptied by forceps, Cavaillon performed bilateral decapsulation of the kidneys, as proposed by Edebohls of New York, with very good effect, the fits ceased and the patient was able to leave the hospital, cured, thirty five days after the operation. From this case it appears that decapsulation of the kidneys may be beneficial in cases of severe eclampsia at the close of pregnancy, as well as being a proceeding by which a premature termination to gestation may possibly be avoided.

Rupture of the Uterus.—v Valenta, Lemberg (*Zentralb f Gyn*, 1905, No 9), met with 14 complete ruptures of the uterus in 1,350 labours (1.02 per cent). Of these, three were cured out of eight operated upon (37.5 per cent.), all the cases which were not operated upon died. The sooner the surgical intervention, the more favourable was the convalescence. v Valenta holds to the same principle as Zweifel, that the child, if it is still in the uterus, should be delivered by the natural passages, but if it has passed entirely into the peritoneal cavity, by laparotomy. In five cases he performed supravaginal amputation with extraperitoneal treatment of the stump, and thus he considers the quickest and safest way of dealing with the ruptured uterus, he stitched up the laceration in one case, and in the two others extirpated the whole uterus.

Puerperal Eclampsia of Intestinal Origin.—Chambrelent (*Jour de Med et de Chir Pratiques* Feb 10, p 110).—A healthy woman, whose urine had been repeatedly examined during pregnancy without albumen being found, was seized at the commencement of labour with a typical eclamptic attack, consisting of tonic and clonic spasms and biting of the tongue. Chloroform was administered and she was delivered as quickly as possible. No further fits occurred and the urine remained free from albumen. The day before labour she had eaten freely of pheasant in such "high" condition that her husband refused it. The following evening she ate some snipe which were less decomposed. In the belief that the convulsions were of intestinal origin she was ordered a purgative, which produced large extremely offensive evacuations. Though such cases are rare, Bar has recorded a case of puerperal eclampsia after eating very "high" game, and it has also followed the ingestion of oysters.—*The Medical Review*, July.

Boss's Dilator.—Lichtenstein (*Archiv f. Gyn*, Bd 75, S 1), a voluntary physician at Leopold's Klinik

admits that later examination of eighteen women delivered by Bossi's method, showed that four had sustained slight and two considerable lacerations of the portio, while in one other there was a bilateral tear in the cervix. In no instance, however, was there any parametric lesion etiologically connected with this method of delivery. In direct contradiction to v Bardeleben (Gusserow's Klinik), Lichtenstein, on the ground of his researches, comes to the conclusion that the women delivered by Bossi's method of dilating the cervix did not suffer any permanent damage that could be set down to this method, even those who suffered from some laceration were in a perfectly satisfactory condition. v Bardeleben admits that lacerations occur in 30 per cent of all artificial deliveries, after delivery by Bossi's method at the Dresden Klinik the lacerations were only 25 per cent, some due to the application of forceps, but more to the extraction.

Pollak, Vienna (Monats f Geb u Gyn, Bd XX, S 951), compares the result of Caesarean section and Bossi's method of dilatation in eclampsia, and finds that taking into consideration only those cases in which the evacuation of the uterus was undertaken while the genital canal was intact, the mortality of Caesarean sections was 46.87 per cent for the mother and 31.25 for the child, while the mortality by Bossi's method was 14.28 per cent for the mother and 18.76 for the child. He, therefore, advocates Bossi's method in the belief that, with the judicious choice of cases, and with the condition that the operator is capable of treating the lacerations that may possibly arise from its employment according to correct principles, this method will keep its place.

Stoeckel, Berlin (Berliner kl Wchns, 1905, No 11) declares himself as no partisan of Bossi's instrument, but admits that it can be employed successfully at any period of pregnancy, even in primiparae with entirely undilated cervix, but hæmorrhages may follow.

v Bardeleben (Zentralb f Gyn, 1905, No 15), points out that he is not an opponent of Bossi's method, indeed, he considers Bossi's instrument as the best yet devised for dilating the cervix, and that good results will be obtained with it, provided its use is confined to suitable cases under favourable conditions. On the other hand, he is entirely opposed to Bossi's principles of esteeming every uterus as capable of dilatation, and leaving the rapidity of the dilatation entirely to the judgment of the operator according to the urgency of the indications.

Modern Methods of Treatment in Obstetrics and Gynaecology—Schmitt (Amer Med, 1905, April 22), advocates the use of antistreptococcus serum in puerperal sepsis, though he says that it is important to use a preparation obtained by inoculating the horse directly from puerperal parturients, and to employ large doses (up to 100 cc). In eclampsia thyroid extract has been added to the list of drugs recommended, and vaginal Caesarean section affords a rapid method of emptying the uterus if the cervix is rigid. Splitting the renal capsule is suggested for cases in which, after emptying the uterus, symptoms of impending anuria develop. Gigli's operation of lateral pubiotomy is described, and is praised as being less dangerous than symphysiotomy. By its means the true conjugate is increased about 3 cm, so that the lowest limit at which it is justifiable is a conjugate of 7 cm, and in a generally contracted pelvis about 8 cm. Emphasis is laid on the general practitioner's responsibility in recognising malignant disease of the uterus at a stage sufficiently early to permit of complete operative extraction.

Endometritis Post Abortum in a Girl aged Eleven—Schuetze, Koenigsberg (Zentralb f Gyn, 1905, No 16), reports a case which is interesting on account of the age of the child. Menstruation had not been established and the very first bleeding from the genitals was an abortion, though not recognised as

such. Later on there was menorrhagia, which led to the uterus being curetted, and the abraded masses proved, microscopically, to be decidua, without containing any chorionic villi. The endometritis was cured, and from that time the menstruation was regular at intervals of from four to five weeks.

On the Loss of Blood in Menstruation—Hoppe Seyler (Muenchener m Wchns, 1905, No 17), reported to the Physiological Society at Kiel, the results of researches he had made in conjunction with Broder son and Rudolph, in fifteen cases as to the amount of the menstrual blood. They found the amount to be, in normal menstruation, from 26 to 52 c cm, in chlorosis, 5 to 29 c cm, while in women approaching the menopause, the loss was either very small or was profuse, as much as 152 c cm. In fever the amount was diminished, while in one case of metrorrhagia which chronic metritis, it was as much as 376 c cm in three days. The proportion of blood in the menstrual discharge is, however, extremely variable, from 35 to 80 per cent.

Injuries to the Rectum in Gynaecological Examinations—Kelly (Jour Amer Med Ass, 1904, November 26) insists upon the care necessary in gynaecological examination. The rectum is most liable to lesion, and he reports four cases in which the finger perforated the wall of the bowel and entered the peritoneal cavity, all, however, recovered. One should remember the age of the patients and the decay in the tonicity of the muscularis of the intestinal wall. When an accident of the kind occurs, Kelly recommends that the abdomen should be opened and the laceration repaired from the peritoneal side. In exploration, one should avoid invaginating the wall of the rectal pouch while pushing it away with the end of the finger. One can avoid this mistake by searching for the rectal valves behind the cervix after passing the finger into the rectal pouch, and only after finding them going deeper into the pelvis, where the bowel lies against the posterior surface of the uterus and the left board ligament.

ANNUAL REPORTS

BENGAL JAILS ADMINISTRATION REPORT

As compared with the previous year the figures show an increase excepting only males and females remaining on the last day of the previous year which show a reduction of 400 and 31 respectively. The number of female convicts remaining at the end of the year also shows a reduction of 12. The enormous increase in the jail population in 1908 is shown by the increase of admissions from 78,891 to over 101,000, and the daily average number rose from 15,275 in 1907 to no less than 16,853 in the past year, an increase of over 2,000, or to put it in another way, we had in 1908 to provide extra accommodation for over 1,500 prisoners, a number in itself sufficient to fill up 4 or 5 new district jails of average size. It is needless to say that the overcrowding being so great, had a materially bad effect on the health of the prisoners and increased the cost of maintenance and the work of the whole department.

Sickness and mortality (all classes of prisoners)—The table on next page gives the average number of prisoners, the ratio per mille of admissions to hospital, the daily average number of sick and the number of deaths amongst all classes during the last four years.

As regards dysentery I regret to say that the good work so well begun by Captain Forster at Midnapore has been interrupted by his transfer to other duties. The work has been left half done. I asked for the retention of his services to stamp out this formidable disease from the jails of this province, but his services could not be spared. It is much to be regretted that he was not able to complete the work so well begun.

Malarial fevers—There was a decline in the number of cases of malarial fevers and in the number of deaths attributed to this cause. This coincides with the fact that many of the districts of Bengal escaped severe malaria owing to the shortness and early cessation of the rains. The prophylactic use of quinine is kept up in all jails.

Officers of the Department—**Superintendents of Central Jails**—Mr E W Payne who had gone home on sick leave retired from the service during the year. In Mr Payne

the department has lost an energetic, strict and experienced officer Mr M S Emerson has had a very difficult year in charge of the Alipore Jail and in addition to these duties he acted as Superintendent of Jail Manufactures since the deputation of Mr Davis Mr Davis has been on deputation to the Education Department for most of the year and this has thrown a lot of extra work on Mr Emerson and on my office It is very desirable that a new Superintendent of Jail Manufactures be obtained at once and I have applied for one Major Mulvany has managed the Presidency Jail with great success and in addition has had in his hands the revision of the Jail Code He is a very able, keen and efficient officer Captain Hamilton has worked very well at Bhagalpur and is likely to turn out an excellent Jail Superintendent Captain W Gillett

work due to this and to the requirements of the press, the results are highly creditable to the Superintendent

At Rampur Boalia Central Jail, as at several district jails the post of Superintendent has been held by more than one person Captain T H Delany, Major A R S Anderson and Major D R Green each held charge in succession The results of the working of the jail were for the most part satisfactory

Major H S Wood deserves much credit for the continued marked improvement in the jail at Tezpur He is a most conscientious officer The following officers have done good work—Major A Leventon, Dibrugarh, Captain J W McCoy, Sylhet, Captain O St J Moses and Captain L B Scott, Barisal, Dr R S Ashe, Faridpur, and Captain W D Ritchie, Chittagong

YEAR	Daily average number of prisoners of all classes	ADMISSIONS INTO HOSPITAL		DAILY AVERAGE NUMBER OF SICK OF ALL CLASSES		DEATHS FROM ALL CAUSES OF ALL CLASSES OF PRISONERS	
		Number of admissions	Ratio per mille	Daily average sick	Ratio per mille	Total number of deaths	Ratio per mille
1904	14,797	13,333	901.0	506.02	34.1	290	19.5
1905	14,934	14,525	972.5	563.48	37.7	379	25.3
1906	15,774	16,042	1,016.9	576.44	36.5	374	23.7
1907	15,275	14,468	936.8	523.80	34.2	268	17.5
1908	16,853	15,529	921.4	614.91	36.4	523	31.0

worked very well at Midnapore till he fell ill On his return from leave he joined at Burai where he has succeeded in restoring discipline and good management which were conspicuously absent during the incumbency of his predecessor Captain Weinman during the period he acted as Superintendent of the Midnapore Central Jail in addition to his duties as Civil Surgeon did his best and devoted much time and personal trouble to the jail during a period of considerable public excitement At Hazaribagh Major Devie has done splendid work and made many improvements in the discipline and industries of this big jail

JAIL ADMINISTRATION, EASTERN BENGAL AND ASSAM

THERE were 7,937 prisoners in jails at the beginning of the year The total admitted during the year was 36,821, against 36,832 in 1907 The number of prisoners in jails at the end of the year was 7,537 The number of direct admissions was 14,127, against 13,967 in the preceding year

The daily average number of all classes of prisoners was 7,766.45, against 8,098.92 in the previous year Of these 6,883.52 were convicts, 863.98 under trials, 17.69 civil and 1.26 State prisoners The decrease of 332.47 in the daily total average population is largely due to a large number of convicts being released on account of the Proclamation Anniversary on 2nd November 1908 viz, 522 Besides, 4,378 prisoners got partial remission of their sentences on the said occasion

The proportion of convicts to total population was as follows—

Total population of the province, according to census for 1901, 30,503,669, average daily strength of convicts, 6,883.52, number of convicts admitted during the year, less the number released from bail, and recaptured prisoners who escaped in 1908 14,127, proportion to every 10,000 of the population—(a) of daily average strength, 2.3, (b) of number admitted during year, 4.6

The daily average strength for the year was 7,766.45, the number admitted to hospital 6,931, and the daily average of sick 263.94, against 8,098.92, 6,779, 286.32, respectively, in 1907 The total number of deaths during the year was 243, against 230 in the preceding year

The daily average number of prisoners was exceeded during the past ten years only in 1907 Yet the number of admissions to hospital was the lowest during that period except in 1899, 1904, 1906 and 1907

Although the daily average number of sick was low, and the ratio of sick per mille of average strength the lowest for the decade, the mortality was high, being 31.29 per mille, against 28.40 in 1907

The death rate would have been much lower this year had it not been that 19 deaths occurred in the cases of prisoners admitted in a very bad state of health and who died within thirty days of their admission

The Central Jail at Dacca was in charge of Major E R Purry throughout the year In spite of the unhealthiness that prevailed and the diminution of available labour for factory

CIVIL HOSPITALS AND DISPENSARIES IN THE MADRAS PRESIDENCY, 1908

SIX hundred and thirty institutions were at work during the whole or part of the year One hospital and one dispensary in the third group furnished no statistics In the other institutions 5,757,453 persons were treated as compared with 5,591,940, the number treated in the Presidency (excluding the Sundar State) during 1907 Omitting 5,060 cases of normal labour included in the returns for the first time under G O, No 748, Public, dated 10th September 1908—the record is an increase of 28 per mille on that of the previous year Among the diseases the most marked increases occurred in eye diseases (226,937) ulcers (72,260), abscesses and diseases of connective tissue (8,033), diarrhoea (6,638), dyspepsia (5,610), and cholera (5,777) the number of injuries was increased by 11,522 on the other hand considerable diminution occurred in malaria (60,569), disorders of the digestive system other than dyspepsia and diarrhoea (27,406), syphilis and gonorrhoea (849), and rheumatic affections (10,990) Cholera was epidemic almost throughout the Presidency for the greater part of the year, and catarrhal conjunctivitis—'sore eyes'—was especially severe in its season, but for the rest it may be inferred that the prevailing high prices of food supplies, and the attendant poverty, were the main causes of the variations

(a) Operations were performed in 205,686 instances, or 10.401 more than in 1907 Groups II and III contributed 5.4 per cent of the total

(b) Midwifery—In addition to 5,060 normal and 3,172 abnormal labours conducted by the Medical staff, and included in the returns, there were 32,640 others in the mofussil districts attended by 363 Local Fund and Municipal midwives The average to each midwife in a district varied from 128.4 in South Canara to 55.7 in Anantapur and was 89.9 for the Presidency in the previous year 345 midwives attended 30,673 cases with an average of 88.9 to each

ANNUAL REPORTS OF THE CALCUTTA MEDICAL INSTITUTIONS AND CHARITABLE DISPENSARIES UNDER THE GOVERNMENT OF BENGAL, 1908

THERE were 17 public institutions at work in Calcutta, besides two private non-aided dispensaries The total number of in-door patients treated was 28,456 against 28,721 in 1907, and of out-door patients, 298,448 and 288,040 respectively The total out-door attendance at the hospitals increased by 10,408 The Medical College Hospital heads the list with the largest increase, 7,036 patients

The out-door department was provided in 1908 with a well equipped electrical annex at a cost of Rs 18,685 for the working of the X-ray apparatus, which is to be removed shortly from the Ezra Hospital where the space is insufficient to meet the increasing demands of patients Of the group of Mayo Institution the Chandney Hospital showed an increase of 4,657, the Superintendent attributing it in some measure to the larger number of fever cases treated, viz, 10,509 against 8,189 in 1907

Special mention need only be made here of maternity cases at the Eden Hospital, the number of which rose from 771 in 1907 to 841 in 1908, thus testifying to the growing popularity of the Hospital, the efficiency of which can be estimated from the fact that in spite of several serious cases not a single case of Septicæmia originated in hospital in 1908. There were 1,562 surgical operations against 1,607 in 1907. This work consisted of cases of important abdominal surgery and other serious operations. Ovariectomy was performed in 15 cases with 1 death against 11 and 1, respectively in 1907. There were 20 abdominal hysterectomies with five deaths against 12 and 1 respectively in 1907. Cesarean section was performed in two cases without a death, and Craniotomy in 14 instances in 1908 with seven deaths. At the Dufferin Victoria Hospital there was a large number of cases in which abdominal section was performed.

There was a large increase in the number of operations in 1908, the figures being 33,368 against 31,848 in 1907. The increase is shared by 12 institutions while in six there was a falling off and in one the figures remained the same as in 1907. The largest decrease took place at the Sambhu Nath Pandit Hospital (407). At the Mayo Hospital the operations were less by 373, the Superintendent stating that the decrease was coincident with the falling off in attendance. The largest increase took place at the Medical College Hospital (1,422), most of it is credited to the surgical out door department.

The Medical Officers who performed a large number of important operations in 1908 were Lieutenant Colonel F P Maynard I.M.S. (500), Lieutenant Colonel C R M Green, I.M.S. (497), Major J O'Kinealy I.M.S. (415), Major C R Stevens I.M.S. (263), Captain A F Barnardo I.M.S. (241), Major R Bird, I.M.S., (C.I.R. (239), Assistant Surgeon Baman Dass Muljee (156) and Lady Doctor Miss R N Cohen (79).

THERE were 572 dispensaries submitting returns during the year 1908 in the province of Bengal.

The total number of in door patients treated presents a strange coincidence, the figures being 63,379, which is exactly the same as in 1907. The general health of the Province, specially the Presidency Burdwan and Bhagalpur Divisions which was bad in the early part of the year, was exceptionally good during the last six months. Fever, which is responsible for much of the unhealthiness, was far less prevalent, and, under the circumstances, it is creditable that the number treated in hospitals was maintained in the year under review.

Out door patients numbered 3,965,101 against 4,013,446 in 1907, showing a decrease of 48,345. This is in keeping with the better general health conditions of the year in some districts of the province. The numbers treated in Police Hospitals also decreased from 23,324 in 1907 to 22,640 in the year under report. In individual dispensaries there were notable increases due either to the popularity of the institution or greater sickness in the locality or both. As examples Banputi (Darbhanga) 4,835, Aival (Gya) 4,066, Khajowli (Durbhanga) 3,888, and in eight more dispensaries the increase was over 3,000 patients each. The largest number of out-patients was treated at the Bunwari Lal Hospital at Laheria Serai (63,819), which is distantly followed by Bettiah with 36,214 and Bankipore with 33,168.

The total number of surgical operations performed in the dispensaries rose from 159,566 in 1907 to 171,628 in 1908. This increase is a satisfactory indication of the greater interest taken by Medical Officers in this branch of hospital work. Moreover new operation rooms on standard plans have been provided in several hospitals. The death rate amongst patients operated on in hospitals in Classes I, III, and IV, was 14 per cent, the same as in 1907. Including the operations in the Calcutta Medical Institutions the total for 1908 was 204,414 as compared with 202,519 in the United Provinces of Agra and Oudh for the same year. Of the more important operations mention may be made of extraction of the lens which was performed in 3,268 instances against 2,889 in 1907, vision being restored in 3,226, giving a ratio of success of 93.67 per cent against 91.12 in 1907. At the Gaya Pilgrim Hospital as many as 461 cataract operations were performed in 1908 with success in 97.25 per cent of the cases. Stone in the bladder was removed by lithotomy in 83 cases against 80 in 1907. This operation ought to be gradually replaced by the crushing method but lithotomies numbered 104 against 124 in 1907. At the Monghyr Hospital there were 25 lithotomies, all successful. Scrotal tumour was removed in 168 cases against 107 in 1907. It is noteworthy that it is a most common complaint of the people of Orissa. In the Cuttack General Hospital 95 scrotal tumours were removed without a death. In this institution as well as in the Berhampore Hospital, which has been much improved recently, nursing is supervised by European ladies, connected with religious denominations, who have contributed not a little to the efficiency of these institutions and have proved an unequalled success. The examples set by these two hospitals may

well be followed in other District Hospitals as the cost for maintaining such nurses is not prohibitive.

Of the obstetrical operations ovariectomy was performed in eight instances in 1908. Including the number of cases which remained from the previous year there were 11 ovariectomies with one death against 17 and 5, respectively, in 1907.

Amongst Officers who performed a large number of important surgical operations mention may be made of Captain E O Thurston I.M.S. (Bhagalpur and Gaya), who heads the list with 360 operations followed by Major B C Oldham I.M.S. (Patna), 279. Lt Col C E Sunder, I.M.S. (Gaya), 269, Lt Col A H Nott, I.M.S. (Nadir and Murshidabad), 226, Major E E Waters, I.M.S. (Cuttack), 202, and Captain J Masson, I.M.S. (Champuram), 200. Civil Assistant Surgeon Satish Chandra Banerjee (Muzaffarpur) performed 294 operations and Assistant Surgeon Tripura Chandra Guha (Bettiah), 221.

ANNUAL REPORT OF THE WORKING OF THE VACCINE SECTION OF THE KING INSTITUTE OF PREVENTIVE MEDICINE, GUINDY, FOR THE YEAR ENDING 31ST MARCH 1909

THE total amount of vaccine prepared at the Institute during the year under report shows a marked advance over that for the previous year. In all, vaccine for 1,969,054 cases was supplied in 1908-1909 which number compared to the 1,883,853 cases issued in 1907-1908 corresponds to an increase of 4.5 per cent.

As in previous years lanoline vaccine was supplied unless glycerinated lymph was specially asked for. The chief demand for the latter came from the Madras Corporation and the Chief Inspector of Vaccination Colombo. It is important to remark that glycerinated lymph is much more sensitive to high temperatures than is lanolinated lymph. Therefore when glycerinated lymph is ordered for, arrangements should be made to use it, as soon after receipt, as possible.

That climatic conditions affect vaccination in India is well known and it is possible that high temperature produces its effect through its action on (a) the vaccine, (b) the vaccinator and (c) the vaccinated.

It has now been abundantly proved that vaccine kept approximately at the freezing point will retain its efficiency for at least six months.

It is proposed to take increasing advantage of this fact to prepare vaccine only under the most favourable climatic conditions. It may therefore be held to be within the limits of possibility to issue stored vaccine from the Institute in an efficient condition. Now as regards the deleterious action of moderately high temperatures (95° F., say) on vaccine, the time factor is one of great importance. Green has shown that such moderate temperatures do not produce deterioration in eight days. Taking three days as the maximum time that a packet of vaccine might be en route, it follows that it is quite possible at all seasons of the year to place an efficient vaccine in the hands of the vaccinator.

VACCINATION RETURNS OF THE PROVINCE OF EASTERN BENGAL AND ASSAM, 1908-9

Vaccination agencies

Vaccination was carried on by 1,130 departmental vaccinators, of whom 300 were paid and 830 licensed men.

Total number of operations

Excluding secondary operations 1,449,658 operations were performed during the year, of which 1,349,379 were primary and 100,279 were revaccination cases.

The total consists of —

1,420,204 operations by officers of the Vaccine Department	
4,587 " " dispensary agencies	
325 " " railway agencies	
19,855 " " tea garden agencies	
4,634 " " jail agencies	

Altogether there was an increase of 91,014 operations, 65,030 in primary and 25,984 in revaccination cases, as compared with the previous year.

Percentage of successful operations

In the Vaccine Department the percentages of successful primary operations were 98.80 and of revaccinations 74.19. The percentages of operations performed in dispensaries were 96.62 and 74.96, respectively.

VACCINATION IN BENGAL, 1908 09

The total number of operations performed in the province during the year, excluding the Tributary State of Pal Lahara in the Orissa Division, the figures for which were sent too late for inclusion in this report, was 2,241,576, of which 1,936,869 were primary and 304,707 re vaccination against 2,053,371 with 1,863,290 primary and 190,081 re vaccination cases of 1907 08. Thus, there was a total increase of 183,205, viz., 68,579 in primary and 114,626 in re vaccination cases, which considering the scarcity at places is very satisfactory. The total number of vaccinations shown above corresponds with the total number of persons vaccinated, as all operations which are repeated are excluded both from the "total number of vaccinations" and from the "total number of persons vaccinated" until the results of the repetitions are known, when they are entered as one and the same cases.

During the year under review, out of 1,502,990 the estimated number of infants under one year available for vaccination, 851,110 or 56.67 per thousand were successfully vaccinated, against 525.4 of the previous year. Again there has been an increase in the percentage of successful cases which is satisfactory. It is most satisfactory that Puri which was most backward in vaccination, specially as regards that of infants under one year of age, should suddenly show such wonderful progress. This is due to the hearty co operations of the District Magistrate, Mr Hamilton, with the Civil Surgeon, Captain MacKellvie, I.M.S., in the work as well as the efforts of the special Inspector for vaccination for Orissa.

THE REFORMATORY SCHOOLS AT ALIPORE AND HAZARIBAGH

These two Schools now form one institution, the inmates of Alipore school having been removed to Hazaribagh.

That the methods in use are being carried out satisfactorily will be evident from the following extract—

In pursuance of the policy of giving the institution the character of a school rather than of a jail, the boys are encouraged to interest themselves in physical drill, gymnastics, and athletics generally. Athletic sports are held annually, at which prizes are awarded. The school band, which practises for three hours a day, has proved a strong incentive to good order, and has exercised a remarkable humanizing influence. A certain period is devoted daily to physical drill and gymnastics, while fire drill and classes for instruction in First Aid to the Injured are regularly held.

During the three years up to 1907, 336 boys were released from the two schools. Fifty one of these boys were untraced. Of the remainder, 219 were found to be leading honest lives, while 51 have been again convicted, 4 are reported to be of bad character, and 8 have died. Out of 125 boys who were taught agriculture, 75 are following that occupation. Two hundred and eleven boys were taught various trades and handicrafts, but only 69 of them are pursuing the occupation in which they received instruction. The proportion, however, has gradually risen since 1904 from one in four to one in three.

Reviews.

Gynæcology and Abdominal Surgery—Vol II Edited by HOWARD A KELLY and CHARLES P NOBLE Messrs W B Saunders & Co

THIS is a work of noble proportions published in the sumptuous style that we associate with the firm of W B Saunders and Co. The illustrations are many and excellent. It is the second volume of a system of surgery of the abdomen and pelvis, by many eminent authors, mostly American. As such it is representative of American teaching and demonstrates the high

position, that it is taking in international surgery. In this volume, the Old World is only represented by Mr Moynihan of Leeds, and Dr Ross of Toronto is the only other British writer.

It is a great advantage to have the surgery of all the abdominal organs treated together. Many books on Surgery leave out, or treat superficially, the surgery of the genital organs, on the other hand, gynæcological works leave out the surgery of all other parts. This is often an annoying circumstance, for in practice they cannot be disassociated. The operator, whether a gynæcologist or a general surgeon, when the abdomen is opened, has to be prepared for every eventuality and operation. This does not apply to diseases of the female breast and this subject might have been left out of the present volume with advantage.

We can only glance at one or two of the articles here.

As regards injuries of the ureter, Brown Miller states that in 7,000 gynæcological operations (presumably of all kinds) in Kelly's clinic of the John Hopkin's Hospital, the ureter is known to have been clamped or ligated, accidentally, fifteen times. In an interesting article by Kelly on the Surgery of the Ureter, he recommends, that if a ureter is injured in the course of an operation, and there is evidence of the kidney, or ureter, on the same side being diseased, and of the other kidney being sound, the kidney should be removed at once.

If the patient is too ill for this, then the ureter should be brought to the surface and secured into the angle of the skin wound.

When the kidneys are healthy and the injury to the ureter is an extensive one, so that it can neither be anastomosed into the bladder, nor into the lower end of the ureter, then the best treatment is to either ligate the ureter and drop it, or to take out the kidney.

If the ureter has been divided, or the injury slight, then the best plan is to tie the lower end, and anastomose the upper end into the lower, below the ligature. To do this Kelly makes a slit in the side of the lower end of the ureter, below the point of the proposed anastomosis. A special bougie is introduced into the slit, and brought out through an incision, at the site of the proposed anastomosis. Then the lower end of the upper portion of the ureter is threaded on to the projecting point of the bougie. This is withdrawn into the ureter, and the two portions of the ureter are sewn together. Finally the bougie is withdrawn and the little slit is sewn up. An end to end anastomosis should only be attempted under the most favourable circumstances.

Floyd McRae in an article on penetrating wounds of the abdomen states that it is unfair to quote military statistics, as an argument

against operations in civil life, and the following are some of his conclusions. In civil practice every suspected penetrating wound of the abdomen should have the benefit of "wound tracing." If penetrating, an exploratory laparotomy should be done at once.

Local toilet is better than free peritoneal irrigation. When in doubt it is safer to drain. When twelve hours have elapsed after an injury before the patient is seen expectant treatment is best unless there is some definite indication for operation.

The articles are characterized by that sobriety of judgment and healthy conservatism that marks the work of the best American authors, in contrast with the rash ill-considered measures advocated by advertising Americans and which have given a bad name to American surgery in the past.

The perusal of this work will benefit all those engaged in abdominal surgery and it is also a useful work of reference.

Operations upon the Uterus, Perineum, and Round Ligaments—By W. J. STEWART MCKAY. Baillière, Tindall and Cox, 1909.

FROM the previous works of the author, particularly "The Preparation and After-treatment of Section Cases," we anticipated obtaining fresh ideas, and instructive details, not to be found in the ordinary text-books and manuals, and we have not been disappointed.

The scope of the work is defined by the author, as setting forth how to deal at once, with the lesions and lacerations to the maternal soft parts, caused by the passage of the child's head during labour, and, at a later date, how to repair these injuries, and rectify the lesions that have arisen from them.

In fact the book gives the operative treatment of perineal lesions and the conditions frequently found associated with them, and is also incidentally a treatise on Gynaecology apart from tumours and tubal disease. We heartily recommend the book to the general practitioner. The description of the anatomical supports of the pelvic floor are clear and distinct. Though it needs must, that perineal lacerations will occur at times, they would be much less frequent if the perineum were "supported" on the correct principles set forth, by the author, and flexion of the head kept up during the birth.

Much suffering and ill-health would also be prevented by a re-study by practitioners of the suturing of recent tears of the vagina and perineum.

The author, although a disciple of Lawson Tait, considers, and we entirely agree with him, that Tait's perineorrhaphy is inadequate for a relaxed vaginal outlet, and lacerations of the lateral sulci. He advocates Kelly's modification of Emmet's operation. The operation is fully and well described. The descriptions of Tait's operations are also very good, and have the ad-

vantage, and distinction, of having been corrected by Mr. Lawson Tait himself. Alexander's operation is particularly well and fully described, and is advocated by the author in uncomplicated cases of retroversion and retroflexion and even in slight cases of prolapse during the child-bearing period. For any more marked prolapse, in young married women, suspension of the uterus, by drawing the round ligaments through the rectus (Gilliam's operation) is recommended. The author condemns ventro-fixation in women, likely to conceive, and contradicts Herman and Giles statement that when "the operation is properly performed subsequent difficulty in labour need not be feared." Once again, we entirely agree with the author, and many disasters from fixation have come to our knowledge.

An interesting note on the Pathology of Endometritis is given and a full description of curettage.

As regards perforation of the uterine wall by the sound or curette, the author states that it is a very frequent accident, and, with Tait and most gynaecologists, laughs at the idea that the sound enters the fallopian tube in normal uterus. This is not a desirable accident, but the perforation of a non-septic uterus by a clean sound is a harmless accident, it may comfort the young practitioner to know. The illustrations—many and excellent—by Dr. G. Dujuy, are a distinct feature of the book. Fig 91 (after Hertzler) in this the impression given by the outline of the ureter, as to its position, is incorrect. Figs 74 & 75 (after Skene) do not illustrate the suturing of a patulous lacerated cervix, but one healthy and vaginal in appearance. In places, the illustrations are too detached from the context, it must be confessed, however, that the number of them is largely responsible for this. The printing and spacing is good, the former of a size that ensure Messrs Baillière, Tindall and Cox a blessing from experienced practitioners of two score years and five and the general get-up of the work is a credit to them. The work shows how up-to-date our confreres in Australia are, and it is a worthy addition to gynaecological literature. The book is about 8 x 6 x 1 and consists of 450 pages.

Formulaire des medications nouvelles pour 1909—By Dr. H. Gillet. Paris. J. B. Baillière et fils. Prix 3fr.

In this little work the author, who has had the advantage of being one of Huchard's *internes*, gives concise information about the new methods of treatment that are being practised with such success. What the general practitioner ought to know is set forth in clear language, and we note that the untoward accidents which may follow each particular method of medication are duly indicated, so that the physician and through him the patient, may be forewarned. All who read French easily should buy this book, whose size is "of the most convenient."

Correspondence

THE SELF CONSTITUTED PRIVATE MEDICAL INSTITUTIONS IN CALCUTTA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—Though there were vigorous attacks on these self constituted private medical institutions through the columns of the *Englishman* and some of the other local contemporaries, yet it is to be regretted that little or no notice was taken by the authorities of the matters complained. As to the necessity of some control—either official or non official—over these institutions there cannot be two opinions. For the vagaries prevailing in some of them are manifold. In the first place I have to invite the attention of the authorities to the very fact that the number of the so called medical institutions in Calcutta has outgrown the limits to such an extent that their evil influence has begun to affect the sister provinces also. And now it is high time for the authorities to open their eyes and find a measure which will check this mushroom like multiplication. Nay, something more is to be done to eradicate the existing evils which are many. The policy adopted, at least by some, by broad cast advertisements and out agency establishments, shows the keen competition and the hard struggle for their existence. And what is the result of this competition? The much respected profession is getting emasculated. A set of quacks turned out every year, in some, once in every three months. What a disgrace to the noble profession—a profession whose continuity can be traced at least back to the early Greek physicians—and that too from the hands of its own men! How can a reasonable man expect these quacks to help in alleviating human sufferings and improving the art and science which they are supposed to practise?

Secondly I regret to say that in some cases the white washing coats the wall so thick that its constructive material is often misunderstood. A prospectus containing a long list of names of respectable persons and rightly or wrongly extracted eulogies is sure to hoodwink anyone who has not understood the real state of affairs of this metropolis. One is naturally tempted to remark that conscience is sacrificed for base ends when one understands that some of these college makers even induce respectable journalists to give publication to such statements as that they (some of these medical institutions) "make their own apparatus, create museums, construct scientific appliances of an advanced order, send out professors to learn new arts and sciences and organise educational exhibitions." What not? What idea the makers of these institutions want to create on the ignorant public outside is quite plain. There is no use in dwelling upon these numberless evils but it should be the earnest effort of every lover of his country to expose these things as early as possible so that, at least in the future, many a poor student of other provinces may save the trouble and expense of going to this city with great hopes only to meet with heart rending disappointment. I should advise my friends outside Bengal to leave the benefits of these medical institutions to our Bengali brethren alone for the present. Meanwhile I must invite the attention of the benevolent British Government to interfere in the matter and thus save the honour of a long respected profession. To improve the conditions as they exist at present is not yet far beyond hope. If there be a code of common rules, a common standard, and a conjoint examination as it prevails in the private medical institutions of Great Britain and if these different institutions be only teaching agencies for a common examination, recognised by the Conjoint Board then I say this arrangement will make the students understand that a bundle of fees receipts is not the only pass which entitles them to a piece of parchment paper which sells very cheap in some of these institutions. If the Government can force upon them this it will surely have the double objects gained—encouragement or indigenous enterprise (if it deserves that)—and at the same time removal of the plague spots in a noble profession which is second to none. If these different institutions are lacking in the means and cannot train up their students to the standard of the Conjoint Board, if they cannot impart sound practical and theoretical instruction within the prescribed period, and if they sense of the expression at the time of their final departure from these so called colleges, then their fate is naturally bound to be doomed and who will not be justified if he calls out at this stage "Halt" to the undesired ones and thus put a stop to the play of these little victims who are regarded less of their dooms and who live no sense of the ills to come.

ANTI HUMBAG

"DATE OF SERVICE FOR PENSION GRIEVANCE"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—I fully endorse all that *Interim* says in his letter on page 112 of *J M G* for March 1909, but the "date of service for pension" is not gone into so fully as the letter entitles it to from its heading.

Many more than the *Interim* officers are labouring under the grievance of "date of service for pension" for even those whose commissions date from entering into Netley before 1890, have had some months of their service mulcted for pension by the Pay Department—the joining time between passing out of Netley and landing in India, being the time that has been mulcted—(although this joining time was never asked for but so ordered by the Indian authorities to suit their books). Yet it is hard to see by what authority the Pay Department has ruled that this joining time must not count towards service for pension. There is nothing definite stated in the Regulations that this joining time cannot count towards pension, and at the same time there is nothing definite stated that it should. It is first a question of how the Regulations have to be read. When I first joined, one circle pyramaster read the Regulations as we do and counted all our (before 1890 men) service for pension but, since then, other pyramasters have read it otherwise and have cut out the joining time referred to as service for pension. So it means we have to (as in most things Eastern) abide by 'Master pleasing'—in this case "Pay Department pleasing."

I personally think if this question was properly represented by us all, some orders would be given us as regards "service for pension."

BANGALORE, }
30th Sept 1909 }I am, Yours truly,
"INTERIM'S ELDER BROTHER"

SANATORIUM TREATMENT FOR TUBERCULAR CASES IN INDIA

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—My plea for writing this short note is to put forward *Kotagiri* as perhaps being a place *par excellence* suited for the treatment of consumptives in all stages.

That tuberculosis is rife in India is admitted by all, and for the amelioration of this scourge if it is, I fancy, agreed that treatment in properly equipped institution is a *sine qua non*.

A friend of mine, a consumptive endowed fortunately for himself with the gifts of this world, has visited many places renowned for their climates to try and effect a cure on himself.

Switzerland, the South of France, and Australia have all been visited and lived in for years.

He eventually turned to India, much against the wishes of his friends and medical advisers who said that by going to India he was courting a sure death.

By some chance or other he hit on *Kotagiri* in his wanderings, in which place he settled.

Just before going there he was, I believe, told by a medical man in Ceylon that he was practically in *articulo mortis*.

A year after this prognosis he rode up to Ootacamund on horseback, a distance of about 18 miles, and visited me.

The other day I wrote and asked him for his opinion on the various climates he has experienced. I quote his reply—

"It (the climate of *Kotagiri*) is undoubtedly the best and most equable climate in India. I have tried Switzerland, South of France, and Australia and find none to suit me as this does. I can lead an invalid's life pleasantly here and yet be in the open air. Parts of Western Australia are undoubtedly fine, only I found the life too strenuous and of course *dial* is a difficulty there."

Now if *Kotagiri* without proper treatment and without proper advice (he treats himself and will not take advice, and knows nothing about the height of his opsonic index) can do so much good, how much more good would sanatorium treatment, with the daily attention of physicians versed in that treatment, do.

I hold no brief for *Kotagiri* and indeed have spent only one night there. On that occasion I remember, I started on horseback from "The Queen of Hill Stations" in the usual Ootacamund weather. Those who have ever been in *Ooty* down in *Kotagiri* in glorious sunshine. The difference between the two places was remarkable. For the benefit of those who may have no idea where *Kotagiri* is, let me mention that it is situated in the Nilgiris about 18 miles from Ootacamund and 12 miles from Coonoor and is a quite get at able place.

From Madras there is a railway journey of about 26 hours to Mettupalayam at the foot of the *ghats*. There one enters the narrow gauge railway in which one travels for

about 2 hours to Coonoor, from which place there is an easy drive of about 12 miles

From all the data that have been given to me I should not think that a better place for a sanatorium than *Kotagiri* could be chosen

The air is most wonderfully pure and dry and being a small place with practically no vehicular traffic there is no dust. It would be specially suitable for patients in the first stage as they could lead a natural open air life without feeling that they were invalids. It is a very quiet place and in that way scores over the health resorts at home where so many people go purely for pleasure and where an invalid feels out of it. There is a small golf course (recently laid out) and there being no rates or taxes, land at present is absurdly cheap. Living is cheap and the food good and easily obtained. Enteric is conspicuous by its absence. There is no regular water supply although, I believe, the subject has been broached. Most of the houses have their own springs and the water is very good.

In answer to question and the temperature, rainfall, etc., I received the following answers

- (1) Maximum shade temperature 80°F
 - Minimum shade temperature 55°F
 - (2) Daily variation of temperature less than 5°F.
 - (3) Average annual rainfall 50 inches
 - (4) Altitude 6,500 feet
 - (5) Prevailing winds S W
 - (6) Average amount of daily sunshine per annum 9 hours
 - (7) Best months of the year { 15th June, 30th Sept
15th Nov 31st March
 - (8) Rainy months 1st Oct, 15th Nov
- (When one gets the N E monsoon Very little of the S W monsoon reaches *Kotagiri*)

I remain,
Dear Sir,
Yours faithfully,
J HAY BURGESS,
CAPTAIN, I M S

OOTACAMUND, }
5th October 1909 }

"PHAGEDÆNIC ULCERS IN ASSAM"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—With reference to the article upon "Phagedænic Ulcers in Assam" by Dr R Lloyd Patterson, which appeared in Vol 43, No 11 of the *Indian Medical Gazette*, it may be of interest to record the occurrence here in the Southern Shan States of the same or a similar kind of sores. Dr Patterson describes the sores as being ulcers with a grey base of false membrane, up to a rupee in size, the edges circular and cupped but not undermined, a fetid exudation of a dark rusty colour given off and an angry areola around the ulcer, the common situation for the ulcers below the knee, favourite sites being the front of the leg, dorsum of foot and points of the ankle, the incidence of the disease commonly in the healthy.

In all these respects, ulcers that are frequently seen here agree with those described by Dr Patterson and differ from the much more serious condition described by Manson. Indeed, the ulcers as they occur here are almost trifling in their symptoms. Absorption of toxins appears to be nil, constitutional symptoms being entirely absent. Two or three large angry looking sores will occasion scarcely any glandular enlargement, thus contrasting strikingly with the buboes that are so usually experienced after some slight infection by the common *pyogenic cocci* of the skin.

Manson says that the disease is found principally in jungle lands with a hot damp climate, and it is noticed here that the sores usually occur among grasscutters and other workers in the jungle. Europeans are not exempt, I myself contracted the sores after a tour along jungle roads in the rainy season, when legs and clothing were constantly wet and muddy.

The sores commonly commence by the infection of some slight scratch or abrasion. A small brown crust forms over this and gradually spreads being formed by a necrosis of the superficial layers of the skin. On the removal of this superficial slough the ulcer is found beneath. Abrasions even in the immediate neighbourhood of the original sore are readily infected, a series of ulcers thus being developed one after the other.

As regards treatment, I have found that the dilute nitrate of mercury ointment checks the spread of the ulcer, and promotes healing. The ointment is rubbed in twice daily on and around the sore until it is healed.

Yours, etc,
R D MACGREGOR,
CAPTAIN, I M S,

Civil Surgeon, Loi Mee Southern Shan States

CATARACT OPERATIONS IN OUTLYING DISPENSARIES

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—It is with some difficulty that I have sacrificed the time and labour to reply to Major Scott Moncrieff's ungenerous attack, in your July issue, on my article headed "Sixty one eye operations in one day" and which you were kind enough to publish about 2 years ago. The references he quotes to belittle my results, viz, (a) 1903 statistics, a period when conjunctival asepis was almost in its infancy and operative technique was not so widely possessed, (b) Norris and Oliver's, Vol III, a system on ophthalmology which was published in 1897 when septic infection was not uncommon and (c) his own experience of only 150 extractions in 4 years, vide page 250, *Indian Medical Gazette*, July 1909, would more than merit a reply as follows—

(a) Look more ahead for figures, for cataract results have considerably improved since 1897 and even 1903.

(b) One has scarcely learnt the A B C of cataract work in his first 500 extractions.

(c) Do not go to print till you have had more up to date experience in mofussil eye surgery.

(d) From a practical standpoint, and from the view of the specialist, the "layman" referred to by him and the writer, are for all practical purposes the same individual.

(e) The dogmas he indulges in after an experience of 150 extractions since 1905, reminds me of the American eye surgeon who finally condemned intracapsular extraction after doing 10 operations.

(f) No doubt my article must have caused a sensation in his brain, considering my day's work was a little short of half of his cataract work for 4 years "put together".

I would have ignored his letter had it not been for the fact that since the publication of my day's work in 1907, many mofussil Civil Surgeons have followed my example, and are doing real good work, and also that my mofussil eyework has increased by leaps and bounds. I have done about 300 extractions during the last 6 weeks at the various Sub Divisional headquarter dispensaries in my district and hope to do another 500 before I go on furlough in December. Major Scott Moncrieff gives \$91 as the total "cured in the United Province statistics for 1903-04". To compare this, which must of a certainty include the work of many assistant surgeons and civil hospital assistants who have just started eyework, with the results of a surgeon who has extracted cataracts for the past 16 years and who has made a special study of this operation, is more than absurd and puerile. Major Scott Moncrieff may quote as many Rajputana eye surgeons as he craves to (I have done 2 years' ophthalmic work in that province, so can speak from experience, of course not such weighty words and dogmas as Major Scott Moncrieff's) in support of his contention that eye surgery in the mofussil is wrong practice. It will have no effect whatever on me, for I prefer to be guided by the results of my own experience. Moreover in my increasing mofussil eye surgery, and the ready way in which villagers flock for operation, is a sure sign that I am doing "good" work and not "casual" "slipshod" surgery. If I was doing harm my patients would find it out more readily than any one else. Since Major Scott Moncrieff is so anxious to know what a European ophthalmologist would think of my article, let me ask him to read the *Ophthalmoscope* in which he will find this out, also to read the *Archives of Ophthalmology* and the *British Medical Journal* of March 14th 1908. He will find in these journals that my work is not viewed—with scepticism (even from our Indian standpoint). I would ask his *Layman* to give up opinionating on a subject on which he is hopelessly incapable of an expression, and to answer me this question, viz, which work is more productive of "good" to the public especially the poor public, and is at the same time less "slipshod" and "casual"—

(1) A Civil Surgeon who at great personal inconvenience, takes the trouble to go into the interior of his district, roll up his sleeves and sweat like a pig on a hot summer day performing cataract operations under thorough up to date antiseptic precautions on the poor blind villagers, or

(2) The Civil Surgeon who having tried to operate in the mofussil on cataracts years ago and gives up now what was then disastrous and hazardous surgery, and who now prefers to remain at headquarters waiting for cases to come, (which apparently in Major Scott Moncrieff's experience come in very sparse numbers, about 30 per annum), and who not content with occupying his time sitting in a chair and swallowing measured and guarded heroic doses of "Alypin" inflicts the same on his hospital assistants and kills a few innocent rabbits at the same time (vide his article, page 250, *I M G*, July 1909). If these hospital assistants were taught how to treat post operative cataract complications, the labour would be less "slipshod" and "casual" and more productive of good, not only to the subordinate concerned and the operations performed, but also to ophthalmic surgery in general. I have now done over one thousand cataract

extractions in different mofussil stations, and the more I do the more convinced I am (and I give into none in my opinion on this point) that it is "correct" surgery, provided you personally attend to your antiseptic precautions and you have a capable and experienced assistant. The question resolves itself into one of a campaign by Civil Surgeons against the ubiquitous eye quack. This class of Swindlers, I have no doubt whatever perform at least 50 cataract operations to each "ONE" done by the Civil Surgeon of a district. I maintain that a Civil Surgeon who, to take even the lowest admissible figures as 80 per cent "cures," obtains this result, is doing good work, when compared with the low percentage of successes obtained by the eye quack. I feel convinced that if more mofussil Eye Surgery was performed we would see fewer cases of incurable blind people and the village eye quack would soon make himself scarce. The Indian villager, who, in a large district, often lies miles away from a hospital, ABSOLUTELY refuses to leave his little grass hut, and make a long journey to the headquarters station, no matter how blind or ill he be. Thus I feel sure is the experience of "ALL" Civil Surgeons. The Indian, rightly or wrongly, will not surrender his inborn right to "go to the devil" in his own sweet-way and this fact "CANNOT" be overcome and "MUST" be faced by any one who takes upon himself the task of condemning mofussil Eye Surgery. As a little more than $\frac{1}{2}$ of my operations are "intracapsular," the question of after treatment is of little or no consequence, for the complications are—practically nil. I have "ALWAYS" and even "NOW" admit that rest is of great importance after an extraction, especially if it is a serious one escaped but that it is not absolutely necessary is the daily experience of eye surgeons, for who has not frequently observed, even in well equipped hospitals, splendid results follow cases who get up and walk about a few hours after the operation has been performed? Colonel Pope of Madras remarks on this point and in the 1909 August number of the *Ophthalmoscope* Lopez of Europe goes so far as to say that the need of rest after cataract extraction has been much exaggerated and is of little or no importance. The three points one has to guard against in mofussil eye surgery are—

(1) *Septic infection* This depends so largely on the personal care and attention bestowed by the surgeon on himself and the patient, such as careful antiseptics, including a "MOUTH PROTECTOR" for the operator, that it needs no further remarks.

(2) *After complications* These are practically nil after an intracapsular extraction, for I open the eye on the 7th day after extraction, unless untoward symptoms call for an earlier interference.

(3) *Rest* This I have already alluded to. Of course, it would be very nice if Civil Surgeons in other parts of India could do as is done by Agency Surgeons in Rajputana and arrange with the district officials to bring in our cataract cases to Headquarters at the expense of Government, but as all Local Governments are not "SO" generous, we are compelled to make our own arrangements, which though effective from a practical point of view, are looked on as "casual" and "slipshod" by a surgeon who is more fortunately situated, but who is still in his embryonic stage of cataract existence. In conclusion, I would remark that this acrimonious discussion has not been of my seeking, and if Major Scott Moncreiff should feel aggrieved at any of my remarks he must thank himself for it, for to him that asks shall be given. Such innuendos as Major Scott Moncreiff has found it necessary to indulge in, are to say the least out of place in a scientific discussion and unworthy of emulation, except as a 'FINAL' rejoinder, and which I must ask him to view this letter of mine as

I remain,

Yours very truly,

H. GIDNEY, F.R.C.S.,

MAJOR, I.M.S.,

Civil Surgeon, Mymensingh

"NASTIN"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

DEAR SIR,—I shall be much obliged if you will kindly inform me in the columns of the *I.M.S.* where information as to the treatment of leprosy with "nastin" can be obtained

Yours faithfully,

T. C. RUTHERFORD,

CAPT, I.M.S.

Offg C.S.

BILASPUR

[In the Supplement to the November issue of this Journal—
Ed, *I.M.G.*]

"CHLOROFORM POISONING"

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR—I have recently returned to a well known firm of druggists in Rangoon a consignment of chloroform which was labelled *chloroform pure B.P. (made from pure alcohol &c)*. It appeared to take an excessive amount to anaesthetise patients became very cyanotic with irregular breathing the pulse was often weak and many had much vomiting, and felt very ill for two days. A sample was sent to the Chemical Examiner who reported that it was not up to B.P. Standard, that it contained products of decomposition, and that it was dangerous to use.

Colonel Granger, J.M.S., F.M.O. Burma, tells me that the whole of the chloroform supplied to military hospitals in Burma, by the Medical Store Depot has been returned, as in one case death occurred, and in another serious symptoms. This chloroform was not obtained from the same source as that first mentioned. It left a stain on blotting paper, and the Chemical Examiner gave a report on it identical with that submitted on my sample.

The morals from the above would seem to be that only chloroform bearing the name of a well known maker such as Duncan Flockhart & Co. should be used. The reputation of Burroughs, Wellcome & Co. should guarantee a like excellence. That chloroform should be kept in a dark cool place and that its purity should be tested from time to time. On the label of Duncan Flockhart's appears the word 'non decomposable'.

It would be useful to know the substance or substances which render chloroform dangerous, and to have an easy test for them.

MAYMYO,
21st September 1909 }

Yours etc,
C. DUER,
MAJOR, I.M.S.

THE MEDICAL ADMINISTRATION REPORTS

To the Editor of "THE INDIAN MEDICAL GAZETTE"

SIR,—The criticisms by the lay press of the merits of the medical administration reports of some of the Indian provinces are hardly edifying. They may not all be correct, but it must be admitted by those interested in the medical institutions of this country that the reports, consisting more of long and dreary tabular statements than of scientific observations, are capable of considerable improvement. Undoubtedly a large amount of clinical material is simply lost through want of proper observation and record, while the chances of greater success in operative surgery are sensibly minimised by attaching undue importance to the number of operations performed in respect of their results. The scientific world, so keenly interested in the tropical ailments, and always eager to welcome every scrap of useful information about them, will not however care to get lost in the tabulated figures. I do not therefore think the lay press is far wrong in expressing doubts as to whether a single copy of the moderately priced reports is ever sold. The reason for this lamentable lack of appreciation is not far to seek. Of all the departments under every provincial administration the medical, though a scientific one, is run on the most anomalous lines in so far that the offices of the administrative medical officers are manned entirely by non professional assistants who are virtually responsible for the compilation of what should otherwise be a highly interesting scientific résumé of the enormous amount of clinical, operative and research work done by the medical services. While on the other hand the personal assistant to every other departmental head is an officer possessing departmental knowledge, for instance, the Inspector General of Police has a police superintendent, the Postmaster General, a postal superintendent, the Inspector General of Prisons, a senior jailor, the Accountant General, an accounts officer, the Commissioner of Excise, a revenue officer, the Chief Engineer, an executive engineer, and so on. Again in the medical department itself the Director General of the Indian medical service and the Surgeons General with the governments of Bombay and Madras have I.M.S. officers as personal assistants. I am afraid that the quality of their office work will at once deteriorate if they are to be replaced even by the best lot of highly literary *babus*. It is therefore not a little surprising that the provincial Inspectors General of the hospitals should not have the personal assistance of competent professional men in carrying out their equally onerous and expert administrative work. I trust that the present Director General, who has an exceptional reputation for professional keenness, will kindly take into consideration this serious anomaly and the necessity of advising the local administrations on the subject of appointing, by rotation, junior I.M.S. officers, or failing to entertain them for financial reasons, selected members of the provincial medical services as personal assistants to the Inspectors General, for not more than a term of five years, and of absorbing the present

non professional head assistants in the different secretariat offices. The same may be said of the sanitation department where health officers should be similarly selected as personal assistants to the sanitary commissioners.

Yours etc,
Comma d Fant

Service Notes

OBITUARY

LIEUTENANT COLONEL JOHN WILKINS CLARKSON, Bombay Medical Service, retired, died at Lausanne, in Switzerland, on 2nd September 1909. He was educated at St Thomas', took the diplomas of M R C S, and of L R C P, London, in 1874, and entered the I M S as Surgeon on 30th September 1875, becoming Surgeon Major on 30th September 1877, Surgeon Lieutenant Colonel on 30th September 1895, and retiring, with an extra pension, on 31st March 1903. He served in Afghanistan in 1879-80, and in Burma in 1887-88, receiving the Medal for these two Campaigns.

COLONEL GEORGE MACBRIDE DAVIS, Bengal Medical Service, retired, died at Wimbledon on 4th October 1909. He was born on 29th March 1846, educated at Queen's College, Belfast, where he took the degrees of M D and M O H in 1866, and also the L A H, in the same year, and entered the I M S as Assistant Surgeon on 1st April 1869, becoming Surgeon on 1st July 1873, Surgeon Major on 1st April 1881, Brigade Surgeon Lieutenant Colonel on 17th January 1894, and Colonel on 25th October 1897. He had a long list of war services, having spent most of his service in the Punjab Frontier Force—North West Frontier of India, Mahsud Waziri 1881, Miranzai 1891, and Hazara 1891, medal with Clasp. Served on P M O of the Waziristan Delimitation Escort in 1894, action at Wano, 3rd November 1894, mentioned in Despatches, G G O No 268 of 1895 Clasp, and D S O Tirah 1897-98 or P M O Second Division, actions at Dargai and at the Sompagha and Aihanga Passes operations in Bajar Valley, 7 to 14 December 1897, mentioned in Despatches, G G O No 214 of 1898 medal with two Clasps, and C B China 1900, as P M O, expeditionary Force, mentioned in Despatches, *London Gazette*, 13th September 1901, medal with two Clasps North West Frontier of India, Waziristan, 1901-02 as P M O, mentioned in Despatches, *London Gazette*, 8th August 1902, Clasp. He received the D S O on 27th August 1895, the C B on 20th May 1898, and a good Service Pension on 14th July 1900. He retired on 25th October 1902.

DR JAMES MCNAUGHT died at Nowgong Assam, on 28th September 1909, aged 65. He was born on 17th October 1843, became Asst Apothecary on 15th January 1861, and Senior

Asst Surgeon with the Honorary rank of Surgeon Captain on 1st December 1894 retiring on attaining the age of 55 on 17th October 1898. He had served for many years as a Civil Surgeon in Assam.

CAPTAIN WILLIAM JOHN MONTGOMERY died in the Officers' Quarters, General Hospital, Madras, on 11th September 1909. He was born on 4th November 1851, became Asst Apothecary on 1st July 1871, and Senior Asst Surgeon and Honorary Captain on 8th June 1903, retiring on 4th November 1906. He had served for some twenty years as a Civil Surgeon in the Central Provinces, latterly at Yeothmal, Wun district, in the Berars. After his retirement he practised in Nagpur for two years, after which he took up the appointment of medical officer of the Penang Emigration Agency at Royapuram, Madras.

RETIREMENTS

LIEUTENANT COLONEL THOMAS RICHARD MULRONLY, of the Bengal Medical Service, retired on 13th August 1909. He was born on 23rd June 1853, educated at the Grant Medical College, Bombay, and entered the Bombay Sub medical Department on 27th September 1873, resigning in 1879. He became M D of Malta in 1879, L R C S and L R C P, Edinburgh, 1879, and M R C S in 1880, subsequently taking the diploma of L R C S, England in 1900. He entered the I M S as Surgeon on 31st March 1880, becoming Surgeon Major on 31st March 1892, and Lieut Colonel on 31st March 1900. Most of his service had been spent in Civil employ in the Punjab, where he had for many years past been Civil Surgeon of Amritsar. The Army List assigns him no war service.

LIEUTENANT ARTHUR BATOUZ ZORAB, I M S, resigned his Commission on 26th September 1909. He was born on 18th April 1880, and entered on 27th July 1907, so had barely two years service.

LIEUTENANT COLONEL EDWIN HAROLD BROWN, of the Bengal Medical Service, retired on 10th November 1909. He was born on 21st July 1861, educated at the Grant Medical College, Bombay, and at University and King's Colleges, London, took the diplomas of L R C P, London, L R C S, Edinburgh in 1884 and entered the I M S as Surgeon on 30th September 1886 becoming Major on 30th September 1898, and Lieut Colonel on 30th September 1906. During his service he added a large number of degrees and diplomas to those with which he first qualified, M D, Brussels (with honours) 1894, M R C P, London, 1902, F R C S, Edinburgh 1903, M D, Durham, 1903, and the public Health Diploma of the London Colleges in 1903. Most of his service had been spent as a Civil Surgeon in Bengal, in various districts, Patna, Backerganj, Darbhanga, Purnea and for the last ten years he had been Civil Surgeon of the 24 Parganas. The Army List assigns him no war service.

THE Lieutenant Governor of the Punjab is pleased to make the following appointments, postings and transfers—

NAME	Rank	Appointed	Posted or transferred to	With effect from	REMARKS
Captain H M H Melhuish, I M S	Assistant Plague Medical Officer	District Plague Medical Officer	Amritsar	21st August 1909 (afternoon)	On return from privilege leave, relieving Lala Hari Chand, offg Civil Surgeon, of the additional duties.
Captain G I Davys, I M S	Assistant Plague Medical Officer		Lahore	29th August 1909	On return from training at the Central Research Institute, Kasauli.
Assistant Surgeon Ram Narayan	In charge Civil Hospital, Hissar	Offg Civil Surgeon	Hissar	31st August 1909 (afternoon)	Relieving Lieutenant M Courtney, proceeding on leave.
Military Assistant Surgeon W C L Deeks	Civil Surgeon, Gujrat		Gujranwala	10th September 1909	Relieving Lieutenant E S Baillie, I S M D, transferred.
Senior Assistant Surgeon Hari Narayan	In charge, Civil Hospital, Rawalpindi	Offg Civil Surgeon	Rawalpindi	13th September 1909	Relieving Lieutenant Colonel W R Clark, I M S, transferred.
Lieutenant E S Baillie, I S M D	Civil Surgeon, Gujranwala		Muzaffargarh	17th September 1909	Relieving Assistant Surgeon Chandu Lal.
Captain N H Hume, I M S	Superintendent, District and Female Jails, Lahore	Officiating Superintendent, District and Female Jails	Lahore	13th September 1909	Vice Captain W T Finlayson, I M S, transferred.
Captain W T Finlayson, I M S	Superintendent, District and Female Jails, Lahore	Officiating Superintendent, Central Jail	Multan	20th September 1909 (afternoon)	Vice Captain R M Dalziel, I M S, proceeding on leave.

The following officers have been granted leave —

NAME	Rank	Period of leave	Nature of leave and rules under which granted	With effect from	REMARKS
Lieutenant M Courtney, I S M D	Civil Surgeon, His son	1 month	Privilege leave under Article 260 of the Civil Service Regulations	31st August 1909 (afternoon)	
Lieutenant Colonel W R Clark, I M S	Civil Surgeon, Rawal Pindi	1 month	Ditto ditto	13th September 1909	

MAJOR F A SMITH, I M S (Bombay) an Agency Surgeon of the 2nd class, is posted as Civil Surgeon, Quetta, with effect from the 17th September 1909

MAJOR F A SMITH, I M S (Bombay) Civil Surgeon, Quetta, is appointed to hold charge of the current duties of the office of Agency Surgeon and Administrative Medical Officer in Baluchistan, in addition to his own duties, with effect from the 17th September 1909, and until further orders

LIEUTENANT A E GRISWOOD, I M S officiating Medical Officer, 45th Sikhs, is appointed to hold charge of the current duties of the office of Agency Surgeon in Bhopal, in addition to his own duties, with effect from the 13th September 1909, and until further orders

LIEUTENANT COLONEL W A SYKES D S O, I M S, Agency Surgeon and Administrative Medical Officer in Baluchistan, is granted privilege leave for the period from the 22nd August to the 1st October 1909, both days inclusive

CAPTAIN J M HOLMES I M S Medical Officer 19th Lancers, in charge of the current duties of the office of Civil Surgeon, Quetta, is appointed to hold charge, in addition of the current duties of the office of Agency Surgeon and Administrative Medical Officer in Baluchistan, with effect from the 22nd August 1909, and until further orders

I M S SPECIALIST —The undermentioned officer is appointed a specialist, in the subject noted, with effect from 21st August 1909 —

Prevention of disease

Lieutenant A J H Russell, I M S, Brigade Laboratory, Bangalore

THE undermentioned officer is granted leave out of India for six months from the 23rd September 1909, on medical certificate under the leave rules of 1896 for the Indian Army —

Captain W J Powell, I M S late officiating Superintendent, Midnapore Central Jail, Pension service, 5th year, commenced 1st September 1909

MAJOR H S WOOD, I M S, made over charge of the Tezpur Jail to Assistant Surgeon Sasanka Mohan Mukharji on the forenoon of the 20th September 1909

The following promotions are made, subject to His Majesty's approval —

MAJORS TO BE LIEUTENANT COLONELS 30th September 1909

Henry Bruce Melville, M B, Joseph Charles Stoelke Vaughan, M B, Alexander Leonard Duke, M B, Joshua Chaytor White, M D, John Blackburn Smith, M B, Henry Francis Cleveland, Charles Henry Bedford, M D

THE services of Captain H R Dutton I M S, are placed temporarily at the disposal of the Government of Bengal

PRIVILEGE leave for one month under Article 260 of the Civil Service Regulations, is granted to Captain D N Anderson, I M S, off Civil Surgeon, with effect from the 4th October 1909, or the subsequent date on which he may avail himself of it

THE Viceroy and Governor General has been pleased to make the following appointment on His Excellency's personal Staff —

To be Honorary Surgeon to the Viceroy

LIEUTENANT COLONEL G F C HARRIS, M D, F R C P, I M S, vice Lieutenant Colonel F F Perry, C I F, F R C S, I M S, vacated

MAJOR J N MACLEOD, C I F, Indian Medical Service (Bengal), in Agency Surgeon of the 2nd Class, is granted privilege leave for three months, combined with furlough for three months and study leave for six months, with effect from the 4th August, 1909

CAPTAIN J M HOLMES, Indian Medical Service, Medical Officer, 19th Lancers, is appointed to hold charge of the current duties of the office of Civil Surgeon, Quetta, in addition to his own duties, with effect from 4th August, 1909, and until further orders

MAJOR R HEARD, M B, I M S, is appointed to be Professor of Midwifery Medical College, Lahore, with effect from the 1st October 1909

MAJOR H AINSWORTH M B, F R C S, I M S, is appointed to be Professor of Ophthalmic Surgery Medical College, Lahore, with effect from the 1st October 1909

THE services of Captain E A Roberts, I M S, are replaced at the disposal of the Army Department

THE services of Colonel H St C Gairdner, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

HIS Excellency the Viceroy and Governor General has been pleased to appoint Assistant Surgeon Khan Bahadur Palanji Hormasji Dadachangji of the Bombay Establishment to be an Honorary Assistant Surgeon on His Excellency's personal staff, vice Assistant Surgeon E Mackenzie, retired

THE services of Captain W H Civaly, M B, I M S, are replaced at the disposal of His Excellency the Commander in Chief in India

THE services of Captain W D A Keys, M D, I M S, are placed temporarily at the disposal of the Government of Bombay

THE services of Captain T C McC Young, M B, I M S, are placed temporarily at the disposal of the Government of Eastern Bengal and Assam for employment in the Sanitary Department

MAJOR J C S VAUGHAN, I M S, Superintendent, Campbell Medical School and Hospital, Calcutta, is allowed combined leave for two years viz, privilege leave for one month and twenty four days and furlough for the remaining period with effect from the 1st November 1909 or any subsequent date on which he may avail himself of it

HIS Excellency the Governor in Council is pleased to appoint Captain M S Irani, I M S, on relief by Captain R W Anthony, M B, C M, I M S, to act as Civil Surgeon, Bujapur, pending further orders

HIS Excellency the Governor in Council is pleased to appoint Major S Evans, M B, M Ch I M S, Acting Surgeon Gokaldas Tejpal Native General Hospital, to act as Deputy Surgeon, Thud District, with attached duties, in addition to his own duties, during the absence on leave of Lieutenant Colonel J P Barry, B A, M B, I M S, or pending further orders

LIEUTENANT COLONEL W E JENNINGS, M D, D P H, I M S, is granted privilege leave of absence for three months from the date of relief

IN Government Notification No 4477, dated the 25th August 1909, granting leave to Lieutenant-Colonel C H L Meyer, I M S, for "30th August 1909" read "31st August 1909"

CAPTAIN H S HUTCHISON, I M S, assumed charge of the Civil Medical duties of Sheikh Budin on the forenoon of the 23rd of September 1909, relieving Major T B Kelly, I M S

SECOND grade Assistant Surgeon Lala Rani Chand made over charge of the duties of the Superintendent of the Deia Ismail Khan Jail to Captain J W Little, I M S, on the forenoon of the 12th September 1909

LIEUTENANT G MILLAR, I M S, assumed charge of the Civil Medical duties of Maidan on the forenoon of the 23rd of September 1909, relieving Captain H W Cruddas, I M S

LIEUTENANT COLONEL W H QUICKE, F R C S (ENGLAND), I M S, has been allowed by His Majesty's Secretary of State for India to return to duty

LIEUTENANT COLONEL J P BARRY, M B, I M S, is granted special leave on urgent private affairs for one month and thirteen days with effect from the 11th October 1909

WITH reference to Rule 3 of the rules contained in General Department Notification No 301, dated the 7th August 1908, Captain W H Borlth, I M S, is invested by the Local Government with all the powers conferred on the Deputy Commissioner by the abovementioned rules

CAPTAIN I M MACPAC, I M S, is appointed to act until further orders, as Superintendent of the Central Jail, Midnapore

CAPTAIN W G HAMILTON, I M S, Officiating Superintendent, Central Jail, Bhagalpur, is appointed substitutively to fill the vacancy in the Jail Department in Bengal, with effect from the 16th January 1908, *vice* Captain J McC A Macmillan, I M S whose services have been replaced at the disposal of the Government of India in the Home Department

MAJOR E E WATERS, I M S, Officiating Surgeon Superintendent, Presidency General Hospital, is allowed combined leave for eighteen months, *viz* privilege leave for three months under article 260 of the Civil Service Regulations and furlough for the remaining period under article 308 (b) of the Regulations, with effect from the date on which he may be relieved of his duties

CAPTAIN R McCARRISON, I M S, an officiating Agency Surgeon of the 2nd class, is posted, on return from leave, as Agency Surgeon, Ghigit, with effect from the 22nd September, 1909

CAPTAIN E C HEPPEP, I M S, an officiating Agency Surgeon of the 2nd class, was posted on return from privilege leave, as Plague Medical Officer, Peshwai, with effect from the 30th August, 1909

THE services of Captain Kanwal Shumshere Singh, I M S, are placed temporarily at the disposal of the Government of the Punjab for employment on plague duty

LIEUTENANT ARTHUR BATOUK ZORAB, M B, is permitted to resign the service, subject to His Majesty's approval, with effect from the 26th September 1909

THE services of Lieutenant H H Thorburn, M B, I M S, are placed temporarily at the disposal of the Government of Bombay for employment in the Jail Department

THE undermentioned officer is granted leave out of India for seven months from the 29th September 1909, under the leave rules of 1886 for the Indian Army

LIEUTENANT COLONEL R JAMES, M B, I M S, late Darbhui Physician, Travancore

PENSION service, thirty first year, commenced 22nd June 1909

THE services of Captain I M Macrae, I M S, are placed temporarily at the disposal of the Government of Bengal for employment in the Jail Department,

CAPTAIN F A F BARNARDO, I M S, officiating Civil Surgeon, Bhagalpur, is allowed privilege leave for twenty days, under article 260 of the Civil Service regulations, with effect from the date on which he avails himself of it

CAPTAIN W G HAMILTON, I M S, Officiating Superintendent of the Bhagalpur Central Jail, is appointed temporarily to hold medical charge of the civil station of Bhagalpur, in addition to his own duties, during the absence, on leave, of Major E A B Newman, I M S, or until further orders

THE services of Captain A C McGilchrist, M D, I M S, are replaced temporarily at the disposal of the Government of India in the Home Department with effect from the afternoon of the 13th October 1909

HIS Excellency the Governor in Council is pleased to make the following appointments *vice* Lieutenant Colonel R J Baker, M A, M D, I M S, retired (12th August 1909) —

LIEUTENANT COLONEL B B GRAYFOOT, M D, I M S, to be first class Civil Surgeon at Karachi

MAJOR S H BURNETT, M B, C M, I M S to be confirmed as Presidency Surgeon, Second District, Bombay, with duties

HIS Excellency the Governor in Council is pleased to appoint Captain O J Coppinger, M B, I M S, to act as Civil Surgeon, Ahmednagar, in addition to his military duties *vice* Major J B Jameson, M B, I M S, pending further orders

Notice.

SCIENTIFIC Articles and Notes of interest to the Profession in India are solicited. Contributors of Original Articles will receive 25 Reprints gratis, if requested

Communications on Editorial Matters, Articles, Letters and Books for Review should be addressed to THE EDITOR: *The Indian Medical Gazette*, c/o Messrs Thacker, Spink & Co, Calcutta

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BOOKS, REPORTS, &c, RECEIVED —

- Photographic Facts and Fallacies (Messrs Burroughs, Wellcome & Co, London)
- The Colonial Librarian's Handbook, 1910 Formulaire des Médications Nouvelles Par Dr Gillet (Messrs J B Baillière et Fils, Paris)
- Report of Administration of the Salt Department, 1908-09
- Annual Returns of the Civil Hospitals and Dispensaries in Madras 1908
- Report of the Administration of the Police of the Lower Provinces, Bengal Presidency, 1908
- Anti plague Vaccine in the Treatment of Plague By D John, M B
- Practical Microscopy By F Skillington Seales, M A, M Sc (Cantab) (Messrs Baillière, Tindall and Cox, London)
- The Morphia Habit and its Voluntary Renunciation By Oscar Jennings, M D (Messrs Baillière, Tindall & Cox, London, 1909)
- Newmann's Cerebellar Abscess By Richard Lake, F R C S (Messrs H K Lewis, Gower St, London, 1909)
- Materia Medica By W Hale White, M D (Messrs J & A Churchill, London, 1909)
- Annals of Tropical Medicine and Parasitology, Liverpool School of Tropical Medicine
- Report of the Indian Civil Veterinary Department, Memoirs No I 1908-09
- Scientific Memoirs No 36 Observations on Rabies By Major Lamb, I M S and Captain McKendrick, I M S

LETTERS, COMMUNICATIONS, &c, RECEIVED FROM —

Senior Hosp Asst K C Palit, Zilgon, Capt Rutherford, I M S, Bilaspur, Major O A Johnston I M S, Bangalore Capt Summer, I M S, Bijnor Capt T B Williams, I M S, Bushire, Capt F P Connor, I M S, Calcutta Major L Rogers I M S, Calcutta, Asst-Surgn G O Chatterjee, Calcutta Major Rost I M S, Rangoon, Major R H Elliott, I M S Madras, Dr G K Pillai, Calcutta, Capt K W Mackenzie, I M S, Quetta Dr V M Phatak, Ujjain, Malwa, Dr W A Gilles Richmond, U S A Col E H Brown I M S, Calcutta Major Clayton Lane I M S, Monghyr, Asst-Surgn S L Sarkar, Patna Capt Hay Burgess, I M S, Ootacamund Capt Fayer, I M S, Suva Major Mulvany, I M S, Darjeeling Lt Col W E Jennings I M S, Poona, Messrs Saunders & Co, London Dr P J Kumaran, Mandalay Hosp Asst B P Daruvana, Ahmedabad Capt Macgregor, I M S, Southern Shan States Messrs Baillière Tindall & Cox London, Major Gidney, I M S, Assam

